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ABSTRACT

This publication includes reports of research on children in progress or recently completed from September 1972 through February 1973. Each entry includes information concerning the investigator, purpose, subjects, methods, duration, cooperating groups, and findings (if available). The reports are listed under several topical headings: (1) long-term research, (2) growth and development, (3) special groups of children, (4) the child in the family, (5) socioeconomic and cultural factors, (6) educational factors and services, (7) social services, and (8) health services. In addition to the reports on research, an extensive bibliography on multiply handicapped children is included. (BRT)

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RESEARCH RELATING TO CHILDREN

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Bulletin 31

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NOTES: *Research Relating to Children* is prepared by the ERIC Clearinghouse on Early Childhood Education under the direction of Lilian G. Katz, Ph.D. Investigators who wish to submit abstracts of their research projects should address correspondence to:

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PREFACE

Research Relating to Children, Bulletin 31 includes reports of research in progress or recently completed research. With the exception of the section on Long-Term Research, it does not repeat studies included in *Bulletins 3* through *30*, even though they are still in progress. This issue, therefore, does not reflect all research relating to children, but only research reported to us from September 1972 through February 1973.

In addition to reports of current research, *Bulletin 31* contains a bibliography entitled *Multiply Handicapped Children: A Bibliography*. The bibliography is divided into five sections: (1) Characteristics, (2) Diagnosis and Therapy, (3) Programs and Services, (4) Teaching Techniques and Teacher Preparation, and (5) General Information.

Publication references and plans are cited in the abstracts of research in the bulletin. The Clearinghouse, however, does not maintain information on the publications of the investigators. If you wish to obtain further details about any of the projects, please check professional journals in the appropriate field, or write directly to the investigator.

We wish to thank investigators who have submitted reports of their research, and those who have informed us of other studies. We wish to acknowledge the valuable assistance of the Science Information Exchange and the foundations which provide us with information about their research grants.

Lilian G. Katz, Ph.D.
Director
ERIC Clearinghouse on Early Childhood Education

To Research Investigators:

This publication is only as complete as you are willing to make it. On page 169 you will find a form for reporting your current research. On page 173 you will find a form to let us know of other investigators who are working in the field. Please let us hear from you.

Research Relating to Children
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CONTENTS

PAGE

BIBLIOGRAPHY
Multiply Handicapped Children: A Bibliography 1
How to Order Documents Cited in the Bibliography 18

LONG-TERM RESEARCH 37

GROWTH AND DEVELOPMENT
General 49
Physical 51
Intellectual 58
Personality 69
Social 75

SPECIAL GROUPS OF CHILDREN
Physically Handicapped 83
Mentally Retarded 86
Gifted 95
Emotionally Disturbed and Mentally Ill 96
Juvenile Delinquency 102
Corrections 104

THE CHILD IN THE FAMILY
Family Relations 106
Childrearing 110

SOCIOECONOMIC AND CULTURAL FACTORS 115

EDUCATIONAL FACTORS AND SERVICES
General Education 119
Specific Skills 132

SOCIAL SERVICES 137

HEALTH SERVICES 141

INSTITUTION INDEX 147

INVESTIGATOR INDEX 153

SUBJECT INDEX 157

OTHER ABSTRACTING JOURNALS AND SERVICES 167

SUMMARY OF RESEARCH REPORT FORM 169

MULTIPLY HANDICAPPED CHILDREN

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LONG-TERM RESEARCH

Note: The reports in this section concern research programs that are continuous.

31-AA-1 LONGITUDINAL STUDY OF CHILD GROWTH AND DEVELOPMENT

Investigator(s): Lester W. Sontag, M.D., Director Emeritus; and Frank Falkner, M.D., Director, Fels Research Institute for the Study of Human Development, Antioch College, 800 Livermore Street, Yellow Springs, Ohio 45387.
Purpose: To study adult personality, adjustment, and aging processes of subjects whose health, growth, personality development, and environment have been studied since birth.
Methods: The program included a study of the aging processes of the subjects' parents in relation to physical and biochemical measures made earlier. It will include studies of parental childrearing practices in the same families for two generations, constancy of autonomic response patterns to stress from childhood to young adulthood, and the relationship of response patterns to psychosomatic disorders in adulthood. Blood lipids in relation to body composition and change in composition will also be studied.
Cooperating group(s): Public Health Service, U. S. Department of Health, Education, and Welfare.

31-AA-2 LONGITUDINAL CROSS-CULTURAL STUDY OF HUMAN DEVELOPMENT

Investigator(s): Harben Boutourline Young, M.D., Research Associate, Human Growth and Development, School of Public Health, Harvard University, Boston, Massachusetts 02115. (Address correspondence to: Harben Boutourline Young, M.D., Harvard Florence Research Project, Via Venezia 10, Florence, Italy.)
Purpose: To observe the long-term effects of environment on growth and health; i.e., the influence of environmental factors upon physical and mental development, and their mode of action and interaction with genetic endowment.
Subjects: Several hundred males, studied from prepuberty, each with four grandparents from the same geographical zone of southern Italy, who now live in the markedly different cultures of Boston, Rome, and Palermo; other groups of 100 girls and several hundred boys in Florence, Italy; and 200 girls in Boston.
Methods: Repeated medical, anthropometric, and psychological examinations nave been conducted, family interviews held (to evaluate childrearing practices), and nutritional and sociocultural data have been collected. Current work under analysis includes a cross-cultural study of moral values; studies of biological age and its estimation; estimation of socioeconomic status across cultures; and a study of changing hemoglobin values in adolescent males. Work that involves further and continuing data collection includes prediction of growth variables; a cross-cultural study of creativity and its environmental determinants; a study of left-handed subjects in the relatively permissive and intolerant cultures of the United States and Italy; and an analysis of menstrual symptoms in both cultures.
Duration: 1956-continuing.
Cooperating group(s): Grant Foundation; Wenner Gren Foundation; Olivetti Corporation; Universities of Florence, Rome, and Palermo.

Publications: *Perceptual and Motor Skills*, 1966, 23, 35-40; *Bulletin of the International Epidemiological Association*, 1965, 12, 1936; *American Journal of Diseases of Children*, 1963, 106, 568-577.

31-AA-3 CHILD HEALTH AND DEVELOPMENT STUDIES

Investigator(s): Jacob Yerushalmy, Ph.D., Professor of Biostatistics, School of Public Health, University of California at Berkeley, Berkeley, California 94720; Stephen Thomas, M.D., Director, Department of Obstetrics and Gynecology; and Edgar Schoen, M.D., Director, Department of Pediatrics, Kaiser Foundation Hospital, Oakland, California 94611.
Purpose: To investigate the relationship of parents' biologic, genetic, and environmental influences (including events during pregnancy, labor, and delivery) to the normal and abnormal development of offspring.
Subjects: Members of the Kaiser Foundation Health Plan (a prepaid medical care program) who reside in the San Francisco-East Bay area.
Methods: Expected byproducts of the investigation are the relationships of factors studied to (1) wasted pregnancies in the forms of early fetal death, perinatal mortality, infant and child mortality; and (2) estimates of the incidence of different types of abnormalities. The study is a prospective, longitudinal type involving both mother and child. Gravidas in the Department of Obstetrics and children in the Pediatric Department are observed, interviewed, and given laboratory examinations. Physicians' observations are systematized uniformly. Special efforts are made to obtain information on members of the study who do not return to the plan for medical care. Detailed growth curves for children, ages birth to 6, and estimates of illnesses and injuries in infancy and the preschool child will be derived on a longitudinal basis.
Duration: July 1959-indefinite.
Cooperating group(s): Permanente Medical Group; Kaiser Foundation Research Institute.
Publications: *Journal of Pediatrics*, August 1967, 71(2), 164-172; *Pediatrics*, 1967, 39, 940-941; *American Journal of Obstetrics and Gynecology*, February 15, 1964, 88(4), 505-518.

31-AA-4 THE BERKELEY, CALIFORNIA GROWTH STUDY

Investigator(s): Dorothy H. Eichorn, Ph.D., Research Psychologist, Institute of Human Development, University of California at Berkeley, Berkeley, California 94720.
Purpose: To study the mental and physical growth of normally healthy persons from birth to the present.
Subjects: 60 full-term, healthy newborns, born in Berkeley hospitals in 1928 to 1929 of white, English-speaking parents; and 140 offspring of these subjects, ages birth to 20, seen irregularly.
Methods: The same data, appropriate for age, were collected for the subjects and their offspring. Beginning in the first week of life, tests of mental and motor development, pediatric examinations, and interviews were conducted at frequent intervals during growth. At all visits, inquiries were made concerning current health and recent illnesses. Anthropometrics, body photographs, and skeletal X-rays were taken at most ages. Socioeconomic data were collected. Studies of the physical aspects of growth include analyses that compare health histories with physical growth and with skeletal maturation. Emotional and other personality variables are being studied for consistency, and in various

interrelations with maternal behavior in infancy, birth histories, socioeconomic status, and intellectual and physical growth.
Duration: 1928-continuing.
Publications: *American Psychologist*, 1968, 23(1), 1-17; *Monograph of the Society for Research in Child Development*, 1963, 28; Bayer, Leona and Bayley, Nancy. *Growth diagnosis: Selected methods for interpreting and predicting physical development from one year to maturity*. Chicago: University of Chicago Press, 1959.

31-AA-5 GROWTH OF PSYCHOPHYSIOLOGICAL PATTERNS IN INFANCY

Investigator(s): Wagner H. Bridger, M.D., Associate Professor of Psychiatry; and Beverly Birns, Ph.D., Assistant Professor of Psychology, Albert Einstein College of Medicine, Yeshiva University, Bronx, New York 10461.
Purpose: To investigate the origins and course of development of individual differences in neonates.
Subjects: Normal, healthy, full-term babies, 2 to 5 days old, born at Bronx Municipal Hospital Center.
Methods: A neonatal behavioral profile, which was established in previous studies, will be used. The profile includes behavioral and heart rate ratings on excitation, soothing, feeding, sleep, and nonstimulus periods of observation. Neonates will be followed at ages 2 weeks, and 1, 2, 3, and 4 months to measure the stability of early appearing traits and their relation to later behaviors. Data will be analyzed with respect to stability of early appearing behaviors and the relationship between neonatal behavior and maternal and birth history.
Duration: 1966-continuing.
Cooperating group(s): National Institute of Mental Health, Public Health Service, U.S. Department of Health, Education, and Welfare.
Publications: In Grant Newton and Seymour Levine (Eds.), *Early experience and behavior: Psychobiology of development*. Springfield, Illinois: Charles C. Thomas, 1968; *Psychosomatic Medicine*, 1966, 28, 316.

31-AA-6 LONGITUDINAL STUDY OF DENTOFACIAL SKELETAL, PHYSICAL GROWTH, AND NUTRITION OF CHILDREN

Investigator(s): Bhim S. Savara, D.M.D., M.S., Chairman, Child Study Clinic, Dental School, University of Oregon, Portland, Oregon 97201.
Purpose: To study the dentofacial growth of children, assessment and skeletal age related to facial growth, and variations in physique and its effect on dentofacial growth; and to determine heritable traits.
Subjects: 420 children, including 40 pairs of twins, ages 3 to 18. 300 children have been observed for more than 10 years.
Methods: Cephalograms, hand, wrist, and calf X-rays, intraoral X-rays, study casts, anthropometric measurements, and photographs are taken; and oral examinations are administered to the subjects. Children are examined every 6 months until they are 14 years old.
Duration: 1950-continuing.
Cooperating group(s): University of Oregon Dental School, National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare.

Publications: *Angle Orthodontist*, 1968, 38, 104-120; *American Journal of Orthodontics*, 1969, 55, 133-153; *American Journal of Physical Anthropology*, 1969, 30(2), 315-318; *Bulletin of the Academy of General Dentistry*, June 1969, 27-31; *Journal of Dentistry for Children*, November-December 1969, 1-4; *American Journal of Orthodontics*, 1970, 57(6), 561-572; *Journal of Dental Research*, 1970, 49(4), 885; *Advances in Oral Biology*, New York: Academic Press, Inc., 1970. Pp. 1-9; *Journal of the American Dental Association*, 1970, 81, 653-661; *Oral Health*, 1971, 61(10), 19-28; *American Journal of Orthodontics*, 1971, 59(5), 488-500; *Symposium on Close-Range Photogrammetry*, Urbana: University of Illinois, 1971. Pp. 365-369.

31-AA-7 NEW RADIOGRAPHIC STANDARDS OF REFERENCE FOR SKELETAL DEVELOPMENT OF CHILDREN AND STANDARDS IN PREPARATION

Investigator(s): S. Idell Pyle, Ph.D., Research Associate in Anatomy, School of Medicine, Case Western Reserve University, Cleveland, Ohio 44106; William W. Greulich, Ph.D., Research Biologist, National Institute of Child Health and Human Development, Bethesda, Maryland 20014; and staff of the National Center for Health Statistics involved in the National Health Survey, Public Health Service, U.S. Department of Health, Education, and Welfare, Washington, D.C. 20201.

Purpose: To develop radiographic standards of reference for skeletal development of children to provide a basis for identifying maturity levels of growing bones in the hands, elbows, shoulders, hips, knees, and feet of children and youths according to the shapes of the bone shadows in an X-ray film.

Subjects: Approximately 1,000 healthy individuals in Cleveland and Boston.

Methods: The bone shadows in an X-ray film display a modal rate of growth of each bone by illustrating regularly occurring osseous features which develop in series in the surface of the bone cortex as it calcifies. A reference standard consists of films arranged as a series to show sequential osseous features which are alike in males and females. It is an instrument for measuring the skeletal maturity level of children. Films of the subjects, covering the full span of growth from birth to adulthood, have been used to prepare standards. A standard of reference for joints in the upper extremity is in preparation, with the section on the hand and wrist showing the application of cardinal maturity indicators of individual bones to handwrist bones which are anomalous in the number of their bone growth centers. For published standards, see Publications below.

Cooperating group(s): Bolton-Brush Growth Study Center, Case Western Reserve University, Cleveland; Department of Maternal and Child Health, Harvard University School of Public Health, Boston; National Center for Health Statistics, Rockville, Maryland; Departments of Pediatrics and Endocrinology, Henry Ford Hospital, Detroit; Merrill-Palmer Institute, Detroit; Department of Education, Eastern Michigan University, Ypsilanti.

Publications: Greulich, W. W. and Pyle, S. I. *A radiographic atlas of skeletal development of the hand and wrist.* (2nd ed.) Stanford, California: Stanford University Press, 1959; Hoerr, N. L.; Pyle, S. I.; and Francis, C. C. *A radiographic atlas of skeletal development of the foot and ankle.* (1st ed.) Springfield, Illinois: Charles C. Thomas, 1962; Pyle, S. I. and Hoerr, N. L. *A standard of reference for the growing knee.* (2nd ed.) Springfield, Illinois: Charles C. Thomas, 1969; Pyle, S. I.; Waterhouse, A. M.; and Greulich, W. W. *A standard of reference for the growing hand and wrist.* (1st ed.) Cleveland: The Press of Case Western Reserve University, 1971.

31-AA-8 METHODS IN CHARACTER DEVELOPMENT

Investigator(s): Ernest M. Ligon, Ph.D., Director; and staff, Union College Character Research Project, 10 Nott Terrace, Schenectady, New York 12308.
Purpose: To develop more effective methods in character development in cooperation with families and character training agencies. (Character is defined in terms of three dimensions: philosophy of values, breadth of social vision, and strength of purpose.)
Subjects: Children and families throughout the United States. The families belong to churches, YMCAs, and schools but participate in the study as individual families.
Methods: Procedures of the research are based on action research, in which the participants cooperate with the laboratory and use methods of coscientist research. Open-ended reports on research goals constitute the basic body of research data. An analysis of these data serves as the basis for the development of new procedures and for the scientific reports that are published concerning it.
Findings: Reports have been prepared concerning hypotheses tested in the home and character building agencies. Most of the findings relate to the home, learning, decision making, and methods for character development, plus descriptions of age level potentials, especially for decision making.
Duration: 1935-continuing.
Cooperating group(s): Lilly Endowment, Inc.
Publications: Catalog: *Attitude Education and Character Development*, which lists 44 publications and includes a price list, is available from the investigator.

31-AA-9 LONGITUDINAL GROWTH STUDIES OF CHILDREN WITH CRANIOFACIAL BIRTH DEFECTS

Investigator(s): Samuel Pruzansky, D.D.S., Director, Center for Craniofacial Anomalies, Medical Center, University of Illinois, P.O. Box 6998, Chicago, Illinois 60680.
Purpose: To study the epidemiology, genetics, morphology, physiology, and postnatal development; and to plot the natural history of children with craniofacial birth defects.
Subjects: Over 3,000 subjects, males and females, from infancy to adulthood.
Methods: The subjects were initially studied as infants. Procedures included roentgenocephalometry, tomography, dental casts, and photographs. Speech and hearing, psychosocial, and pediatric evaluations supplied additional information.
Findings: Patterns of growth have been delineated that are useful in clinical management. Some conditions have been shown to get worse; some show spontaneous improvement; and others remain unchanged. Syndrome-specific cranial morphologies have been described and genetic significance has been described.
Cooperating group(s): Illinois State Pediatric Institute; Division of Services for Crippled Children, University of Illinois; Cook County Children's Hospital; Division of Research, Maternal and Child Health Services, National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare; National Institute of Dental Research, National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare.
Publications: *Cleft Palate Journal*, 1971, 8, 239. A list of articles in journals of dentistry, medicine, public health, speech and hearing, and psychology is available from the investigator.

31-AA-10 YOUTH REPORTS

Investigator(s): Cecelia E. Sudia, M.A., Research and Evaluation Division, Children's Bureau, Office of Child Development, U.S. Department of Health, Education, and Welfare, P.O. Box 1182, Washington, D.C. 20013.
Purpose: To collect and analyze opinions and values of high school age youths.
Subjects: 250 high school students.
Methods: Students were randomly chosen from youth enrolled in college preparatory courses in high schools selected to cover urban and suburban schools in each of 12 metropolitan areas in the United States. Each student was sent a set of short, open-ended questions and asked to report on the range of opinions in his school or neighborhood group. It is anticipated that the panel will be interviewed in this way two to three times a year. Replies are coded for content; analysis is both quantitative and qualitative.
Findings: The method of mail interview is successful with this group of students, and qualitative reports of opinion add considerable depth and range, as compared to typical polls of student opinions.
Duration: Spring 1969-continuing.
Publications: Teenagers discuss the "generation gap." *Youth Reports No. 1,* U.S. Department of Health, Education, and Welfare, 1969; Youth reporters discuss "problem drugs." *Youth Reports No. 2,* U.S. Department of Health, Education, and Welfare, 1970; Youth reporters discuss legal age restrictions. *Youth Reports No. 3,* U.S. Department of Health, Education, and Welfare, 1971.

31-AA-11 PHILADELPHIA CENTER FOR RESEARCH IN CHILD GROWTH

Investigator(s): Wilton M. Krogman, Ph.D., LL.D., Director, Philadelphia Center for Research in Child Growth; Geoffrey F. Walker, B.D.S., Director, Philadelphia Center for Craniofacial Biology, University of Pennsylvania, Philadelphia, Pennsylvania 19146; and Francis E. Johnston, Ph.D., Department of Anthropology, University of Texas, Austin, Texas 78712.
Purpose: To develop standards and norms of physical growth and development for normal, healthy children in Philadelphia.
Subjects: 300 white boys and 300 white girls; 250 black boys and 250 black girls; ages 6 to 17.
Methods: Cephalometry and somatometry are employed. Measurements are linear, transverse, sagittal, circumferential, skin thickness (via skin calipers), X-ray films of left hand (routinely) and of upper arm or lower leg (reduced number of cases); also of head and face in *norma laterales sinistra* and *norma faciales* (roentgenographic cephalometry). Dental models are taken. Histories secured are (1) familial in terms of ethnic background and socioeconomic status; (2) medical (illness) and dental (occlusion, dental stage, oral habits); and (3) genetic, in terms of the familial occurrence of trait(s) considered. All data may be referred to several age categories: (1) chronological age, (2) dental or eruptive age, and (3) skeletal or biological age. All data have been put on microfilm, coded, and stored in computer memory. (1) *School Series:* initially based on 600 normal, healthy, white 6- to 12-year old school children from five Philadelphia schools (ultimately followed to 22 schools). These children have provided the core data upon which the 7- to 17-year standards are based. (2) *Negro American Series:* based on the semiannual study of 500 elementary school children. These children have provided the core data upon which the 7- to 17-year standards are based. (3) *Orthodontic Series:* now numbers 2,700 children from the Orthodontic Clinics of the University of Pennsylvania (2,000) and the Children's Hospital (500). All of these children have been followed

through their treatment course (2 to 4 years, average). There are posttreatment follow-up studies on about 10 percent of them. (4) *Cleft Palate Series:* in cooperation with the Children's Hospital. These data are single preoperative roentgenographic cephalometric, plus selected somatometry. There are 600 such records and follow-up data on about 10 percent of these children. (5) *Cooley's Anemia Series:* based on 120 children. Measurements, X-ray films, familiogenetic histories were taken, and therapeutic treatment was given. (6) *Endocrine and Chromosomal Series:* Children seen on a referral basis from Children's Hospital.

Duration: 1949-1971.

Cooperating group(s): Children's Hospital of Philadelphia; Philadelphia Board of Education; School System, Archdiocese of Philadelphia; National Institute of Dental Research and National Institute of Child Health and Human Development, Public Health Service, U.S. Department of Health, Education, and Welfare.

Publications: *Monograph of the Society for Research in Child Development,* May 1970, 35(3, Serial No. 136).

31-AA-12 LONGITUDINAL GROWTH STUDY OF GUATEMALAN CHILDREN OF DIFFERENT RACIAL HISTORIES AND SOCIOECONOMIC BACKGROUNDS

Investigator(s): Francis E. Johnston, Ph.D., Professor, Department of Anthropology; Robert M. Malina, Ph.D., Associate Professor, University of Texas, Austin, Texas 78712; and Robert MacVean, Ed.D., Vice-Rector, Universidad del Valle de Guatemala; and Director, American School, Guatemala City, Guatemala.

Purpose: To study the interrelationships between growth measurements and performance measurements in a longitudinal sample of Guatemalan children of different genetic and socioeconomic backgrounds.

Subjects: Approximately 2,000 male and female students, ages 6 to 16, enrolled in two public and two private schools in Guatemala City are examined each year. Children are of Guatemalan, European, and North American backgrounds.

Methods: Subjects are examined each spring. Data gathered include anthropometric measurements, hand-wrist X-rays, results of intelligence and performance tests, and medical examination records. Cross-sectional and longitudinal analyses of data will be performed.

Duration: 1953-1975.

Cooperating group(s): American School, Guatemala City; Universidad del Valle de Guatemala; University of Texas, Austin.

31-AA-13 PROGNOSTIC VALUE OF NEONATAL BEHAVIORAL ASSESSMENTS

Investigator(s): Judy F. Rosenblith, Ph.D., Professor of Psychology, Wheaton College, Norton, Massachusetts 02766; and Associate Member, Institute of Life Sciences, Brown University, Box 1910, Providence, Rhode Island 02912.

Purpose: To determine if standardized behavioral assessment of newborns can be used to identify a population at risk to later neurologically based developmental dysfunction.

Subjects: Approximately 1,750 newborns, 1,550 of whom participate in the Providence Collaborative Perinatal Research Project.

Methods: The Rosenblith modification of the Graham Scale, a behavioral assessment, was used to determine the neurological, muscular, and sensory status of the newborns. Prognostic value of this scale is determined by relating it to criteria obtained in the follow-up assessments of the Collaborative Perinatal Research Project. Replications of the original study based on 400 infants total almost four. Data are now complete through the fourth year psychological examination.

Findings: Newborn measures are related to development at 8 months of age. Specific newborn signs are prognostic of later dysfunction: hypersensitivity to light is indicative of severe neurological damage; unusual patterns of muscle tonicity are related to varying degrees of developmental problems. The newborn assessments could be routinely adapted by hospitals: the equipment costs less than $10; the time required for assessment is less than a 1/2 hour; and the examination procedure can be taught to paraprofessional personnel.

Duration: January 1958-September 1975.

Cooperating group(s): Providence Lying-In Hospital; Child Development Study and Institute of Life Sciences, Brown University.

Publications: *Biologia Neonatorium,* 1970, 15, 217-228; *American Academy of Ophthalmology and Otolaryngology. Transactions,* 1970, 74, 1215-1228; Dubois-Poolsen, Lairy, and Remond (Eds.) La fonction du regard. *Colloque,* 1971, 215-224 (published by Institut National de la Sante et de la Recherche Medicale, Paris).

31-AA-14 COLLABORATIVE STUDIES IN CEREBRAL PALSY AND OTHER NEUROLOGICAL AND SENSORY DISORDERS OF INFANCY AND CHILDHOOD

Investigator(s): Heinz W. Berendes, M.D., National Institute of Neurological Diseases and Stroke, National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare, Bethesda, Maryland 20014.

Purpose: To investigate factors and conditions that affect parents: (1) conditions of pregnancy; e.g., infections, trauma, bleeding, drugs, and progress of labor; (2) environmental factors that influence the mother; e.g., social and economic conditions, emotional stress, and medical care; (3) biological factors in parents; e.g., age, parity, medical and reproductive history, and immunologic characteristics; and (4) the genetic background of the parents. To investigate in the offspring: disorders of the nervous system at the time of delivery or disorders that appear during infancy or early childhood, including cerebral palsy, mental subnormality, and behavioral disorders.

Subjects: Approximately 8,000 live births a year from collaborating institutions for 6 years. Offspring are followed until 8 years of age.

Methods: A detailed investigation of the independent variables will be directed towards the reevaluation of the effect of factors already suspected, clarification of the way in which these factors are operative, and the discovery of new factors. Information, from women studied during pregnancy and from their offspring throughout infancy and early childhood, will be collected and analyzed in a uniform way in a number of medical centers throughout the country. Intensive study is made of a limited number of cases; less intensive studies are conducted for as many damaged children and abnormal pregnancies as possible.

Duration: 1956-continuing.

Cooperating group(s): Charity Hospital, New Orleans, Louisiana; Johns Hopkins University, School of Medicine, Baltimore, Maryland; Boston Lying-In Hospital, Children's Medical Center, and Harvard University (Warren Anatomical Museum), Boston, Massachusetts; University of Minnesota Medical School, Minneapolis, Minnesota; Columbia-Presbyterian

Medical Center, New York, New York; Children's Hospital of Buffalo, Buffalo, New York; University of Oregon Medical School, Portland, Oregon; Children's Hospital of Philadelphia and Pennsylvania Hospital, Philadelphia, Pennsylvania; Brown University, Providence, Rhode Island; University of Tennessee Medical School, Memphis, Tennessee; Medical College of Virginia, Richmond, Virginia.

Publications: Chipman, S.S.; Lilienfeld, A.M.; and Donnelly, J.F. (Eds.) *Research methodology and needs in perinatal studies.* Springfield, Illinois: Charles C. Thomas, 1966. Chapters 5 and 6. A bibliography is available from the investigator.

31-AA-15 STUDY OF PERSONALITY ORIENTED DEVELOPMENT BY THE TWIN INTRAPAIR COMPARISON METHOD

Investigator(s): William Pollin, M.D., Chief; Donald Cohen, M.D., Clinical Associate; and Eleanor Dibble, Research Social Worker, Section on Twin and Sibling Studies, Adult Psychiatry Branch, National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U.S. Department of Health, Education, and Welfare, Bethesda, Maryland 20014.

Purpose: To understand the contributions of genetic, constitutional, and environmental factors to social, emotional, and cognitive development during the first years of life; specifically, to explicate the factors that underlie the emergence of individuality, using twins and triplets as subjects.

Subjects: Twins and triplets, from the prenatal period through elementary school age.

Methods: The central methodological principle emphasizes the effort to define precisely developmental difference within infant and childhood MZ twin pairs, and then search for the determinants of such differences. In the longitudinal study, parents are interviewed as soon as the diagnosis of a twin pregnancy is made. Neurological, pediatric, and developmental assessments are performed at birth and at 3- to 6-month intervals during the first years of life. The parents are interviewed at the same intervals about the children's development and family history. In the preschool period, the children receive standardized psychological testing, are observed in a standardized nursery school setting, and are administered projective psychological testing. Children and families are visited at home and also seen in structured office settings. In cross-sectional studies, children are seen for developmental evaluation, psychological assessment, and observations of free play, and their parents are interviewed. The value of questionnaire techniques is being investigated. A general research question relates to the way in which constitutional differences in the children elicit different types of parenting, and the ways in which differential parental behavior shapes the emergence of personality differences in the children.

Duration: 1967-1980.

31-AA-16 PREVENTIVELY ORIENTED SCHOOL MENTAL HEALTH PROGRAMS

Investigator(s): Emory L. Cowen, Ph.D., Professor, Department of Psychology, and Director; D. A. Dorr, Ph.D., Research Coordinator; L. D. Izzo, M.A., Chief Psychologist; and M.A. Trost, M.A., Chief Social Worker, Primary Mental Health Project, University of Rochester, River Campus Station, Rochester, New York 14627.

Purpose: To detect and prevent school maladaptation.

Subjects: 7,500 school children including 4,500 primary children in 11 preventively oriented school mental health programs.

Methods: Current research which originated in 1958 (see *Research Relating to Children*, Study 19-SS-7), includes 23 studies on training nonprofessionals, evaluation of programs, process analyses, selection-process relations, selection-outcome relations, and process-outcome relations. Between 20 and 30 different research instruments and assessment procedures are being used.
Duration: February 1969-continuing.
Cooperating group(s): University of Rochester.

31-AA-17 LANGUAGE ACQUISITION IN THE CONTEXT OF THE DEVELOPMENT OF BEHAVIOR AND INTERACTION

Investigator(s): Margaret Bullowa, M.D., Researcher, Speech Communication Group, Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.
Purpose: To find the steps by which early stages of the child's language development take place.
Subjects: Four firstborn children from white, English-speaking, middle class families.
Methods: Each child was observed from birth for at least 30 months at home at weekly intervals. On each visit a half hour continuous record was made on tape and film. An observer using a shielded microphone dictated a simultaneous description of ongoing behavior and interaction to supplement the film taken by a robot camera. A timing signal was placed on the tape and film every 5 seconds. (The tape and film from an observation may be synchronized during playback in the laboratory.) In addition, an independent team that consisted of a pediatrician and a developmental psychologist visited each baby's home once a month to assess other aspects of maturation and development. Indexes to sound and transcripts were made from the tapes to permit rapid search. Tapes are analyzed by linguists interested in phonological, semantic and syntactic features. Synchronized tape and film is studied by linguists and by the principal investigator, who is interested in the communicative behavior of which the vocalization forms a part.
Findings: The most significant finding is the apparent obligatory relationship between the child's vocal sound production and actions with the same meaning in early *performative sentences*. Such sentences are used by the child to communicate messages when he is showing something to someone, when he is greeting someone, etc. Another finding is the spontaneous appearance of sentences with topic-comment construction in the child's speech even though parents rarely use this construction. (The construction is not characteristic of adult American English.)
Duration: Pilot study, 1959-1965; present study, 1965-continuing.
Cooperating group(s): National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare.
Publications: *Journal of Child Psychiatry*, 1964, III(1), 53; *Monographs of the Society for Research in Child Development*, 1964, 29(1), 101-114; *Language and Speech*, 1964, 7(2), 107-111; *Quarterly Progress Report of the Research Laboratory of Electronics*, 1966, 81, 181-186; *Lingua*, 1967, 19(1), 1-59; *Foundations of Language*, 1967, 1, 37-65; Reibel, D. A. and Schane, S. A. (Eds.) *Modern studies in English*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1969. Pp. 422-447; Bar-Adon, A. and Leopold, W. F. (Eds.) *Child language: A book of readings*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971; *Journal of the American Academy of Child Psychiatry*, 1971, 10(1), 124-135; *Quarterly Progress Report of the Research Laboratory of Electronics*, M.I.T., 1971, No. 100.

52

31-AA-18 THE HARVARD PRESCHOOL PROJECT

Investigator(s): Burton L. White, Ph.D., Director; Jean Watts, Ph.D., Co-director; and Barbara Kaban, M.A., The Harvard Preschool Project, Laboratory of Human Development, Graduate School of Education, Harvard University, 418 Larsen Hall, Appian Way, Cambridge, Massachusetts 02138.

Purpose: To trace the development of educability and competence in children during the first 6 years of life, and simultaneously to trace the role of experience in such development.

Subjects: Presently, 32 normal children, ages 12 to 32 months, of both sexes, half of whom were selected because they exhibited potentials to develop high degrees of general competence during the second and third years of life; while the other children seemed likely to develop a considerably lower level of competence.

Methods: The work in progress constitutes a longitudinal natural experiment. Data are collected by home observation and testing of the children on the average of 2 hours per week. One observational technique consists of tape recordings in which the observer describes the child's activities. The data are then coded onto forms using instruments developed for the project. Another technique involves a checklist record of behavior. Tests of language and cognitive development are administered regularly. Factors, including stream of experience, the child's competencies, and salient environmental influences, are measured.

Findings: Analysis of preliminary data indicates that the observation instruments are monitoring the development of competence in promising ways. Further indications of how childrearing practices influence the process are becoming clear. The mother or substitute, usually through indirect action, is seen as the major environmental influence on the development of competence. A longitudinal experiment will be initiated this year. (See *Research Relating to Children, Bulletin 22,* May-December 1967, Study 22-DA-3, p. 16.)

Duration: September 1965-continuing.

Cooperating group(s): U. S. Office of Economic Opportunity; Carnegie Corporation, New York; Head Start, Office of Child Development, U. S. Department of Health, Education, and Welfare.

31-AA-19 LEARNING OF INCENTIVE VALUE IN CHILDREN

Investigator(s): Jum C. Nunnally, Ph.D., Professor, Department of Psychology, Vanderbilt University, Nashville, Tennessee 37203.

Purpose: To study the learning of incentive value in children through the use of reward conditioning.

Subjects: Elementary school children, ages 7 to 11.

Methods: Neutral objects (usually nonsense syllables) are associated with receipt of reward, nonreward, and loss of reward in various types of research designs. The amounts and kinds of condition reward value are measured in relation to verbal evaluation, reward expectancy, choice behavior, and measures of selective attention.

Findings: Various consistent effects have been found on the dependent measures, and the research paradigms have been able to differentiate many treatment conditions concerned with secondary rewards.

Duration: 1963-continuing.

Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

Publications: Rileigh, K. K. and Nunnally, J. C. A new measure of semantic appraisal for studies of secondary rewards. *Psychonomic Science,* 1970, 18, 203-205; Wilson, W. H. and Nunnally, J. C. A naturalistic investigation of acquired meaning in children. *Psychonomic Science,* 1971, 23, 149-150.

31-AA-20 COLLABORATIVE PERINATAL RESEARCH PROJECT

Investigator(s): John A. Anderson, M.D., Ph.D., Professor and Head, Department of Pediatrics; and Robert O. Fisch, M.D., Project Director, Child Development Study, University of Minnesota, Box 487 Mayo Memorial, Minneapolis, Minnesota 55455.
Purpose: To develop public health measures for the prevention of pregnancy wastage and damaged children.
Subjects: Approximately 3,000 pregnant women and their newborns who will be followed from birth to age 8.
Methods: The following data will be collected from early pregnancy onward for the mother and child: history, physical examination, laboratory findings, labor and delivery, newborn observations, nursing, pediatric-neurological examinations, 4-month pediatric evaluation, 3-year speech and hearing examination, 4-year psychological examination, 7-year pediatric-neurological and psychological examination, and 8-year speech, language, and hearing examination.
Duration: January 1958-July 1974.
Cooperating group(s): National Institute of Neurological Diseases and Stroke, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare; Boston Lying-In Hospital; Brown University, Providence; Charity Hospital, New Orleans; University of Buffalo; Children's Hospital, Phildalephia; Children's Medical Center, Boston; Columbia University, New York; Johns Hopkins University, Baltimore; Medical College, University of Virginia, Charlottesville; New York Medical College, New York; Pennsylvania Hospital, Philadelphia; University of Oregon Medical School, Portland; University of Tennessee College of Medicine, Memphis.
Publications: Results will be available from Dr. Joseph S. Drage, Acting Chief, Perinatal Research Branch, National Institutes of Health, Bethesda, Maryland 20014.

31-AA-21 CHILDHOOD PSYCHOSIS

Investigator(s): Rudolf Ekstein, Ph.D., Director, Childhood Psychosis Project; Seymour W. Friedman, M.D., Director, Clinical Services; Peter Landres, M.D., Staff Psychiatrist; Beatrice M. Cooper, M.A., Senior Research Social Worker; and Joel Liebowitz, Ph.D., Clinical Research Psychologist, Reiss-Davis Child Study Center, 9760 West Pico Boulevard, Los Angeles, California 90035.
Purpose: To develop better diagnostic and treatment methods for childhood psychosis; and to investigate psychoanalytic methods of treatment, the use of support systems, and work with parents, collaborating agencies, schools, and hospitals.
Subjects: 10 children, ages 5 to 20.
Methods: Data were gathered through tape recordings of psychotherapy sessions, therapists' summaries of sessions, and repeated psychological tests. The use of *distance* as a psychological mechanism will be investigated. (See *Research Relating to Children, Bulletin 18*, 1964, 58; and *Bulletin 20*, 1966, 72.)
Duration: 1957-continuing.
Publications: *Children of time and space, of action and impulse*. New York: Appleton-Century-Crofts, 1966; *The challenge: Despair and hope in the conquest of inner space*. New York: Brunner/Mazel, 1971; Ekstein, R. and Friedman, S. W. Do you have faith that I'll make it? *Reiss-Davis Clinic Bulletin*, 1971, 8(2); Rubin, K. The flawed hammer. *Reiss-Davis Clinic Bulletin*, 1971 8(2); Cooper, B. The flawed triangle. *Reiss-Davis Clinic Bulletin*, 1971, 8(2); Liebowitz, J. M. Transformation of the flaw — Reevaluation via psychological testing. *Reiss-Davis Clinic Bulletin*, 1971, 8(2); Ekstein, R. and Wax, D. Fusion and diffusion of memory and perception in childhood psychosis in relation to psychotherapeutic innovations. *Reiss-Davis Clinic Bulletin*, 1972, 9(2); Ekstein, R. Friedman, S.; and Caruth, E. The psychoanalytic treatment of childhood schizophrenia. In B. B. Wolman (Ed.) *Manual of child psychopathology*. New York: McGraw Hill, 1972. Pp. 1035-1057.

GROWTH AND DEVELOPMENT

General

31-BA-1 THE FAMILY DEVELOPMENT RESEARCH PROGRAM

Investigator(s): J. Ronald Lally, Ed.D., Director, Family Development and Research Program, Syracuse University, 100 Walnut Place, Syracuse, New York 13210.

Purpose: To provide experiences designed to foster and sustain a child's maximal cognitive and psychosocial functioning, for infants, toddlers, and their families; and to assess the effectiveness of such a program.

Subjects: 170 Negro and Caucasian infants, prenatal to 36 months of age, and their poorly educated, low income families.

Methods: In the infant program, babies, ages 6 to 15 months, attend half-day sessions. Four infants are assigned to one adult for care for cognitive, social, and language stimulation. Materials and environment are designed to promote the sensory and motor skills of the infants. Infant growth in a variety of developmental areas is tested regularly and compared with the growth of control infants not in the program. Older infants (ages 15 to 36 months) take part in a full day family style program. The children move freely from one area to another and choose among such activities as small muscle games, listening and looking experiences, large muscle games, and expressive play. Paraprofessionals who are trained in nutrition, health, and early cognitive input, visit the homes of the infants weekly. Weekly reports of the paraprofessional provide data on financial, emotional-social, and nutritional problems of the families. A parent organization meets twice monthly, and a workshop is held each week to provide parents with free babysitting for their children not enrolled in the program. Inservice training is held weekly for all teachers and paraprofessionals. Program quality is assessed by systematic observational data collected on the classroom behaviors of the adults giving care to the children.

Findings: Results indicate a significant advantage in developmental IQ points (Cattell Infant Intelligence Scale) for 6-month-old Black infants whose mothers have received prenatal and perinatal home visits. This advantage holds for boys and girls separately, as well as grouped. One-year-old infants in the program were found to perform significantly better on object performance tasks than their controls. By age 18 months (after 1 year in the program) infants scored significantly higher in intelligence than control infants.

Duration: 1969-1975.

Cooperating group(s): Office of Child Development, U. S. Department of Health, Education, and Welfare.

Publications: Honig, A. A brief description of the Syracuse University Children's Center program. *New York State Psychologist*, October 1971, 23(22).

31-BA-2 DIAGNOSTIC AND INTERVENTION STUDIES OF HIGH-RISK INFANTS

Investigator(s): Arthur H. Parmelee, M. D., Head, Division of Child Development; and Claire Kopp, Ph.D., Department of Pediatrics, School of Medicine, University of California at Los Angeles, Los Angeles, California 90024.

Purpose: To study in detail a group of high-risk infants during their first 8 months of life, using various behavioral and neurophysiological measures; and to develop and implement an intervention program for a selected number of the high-risk infants, 3 months to 2 years of age.

Subjects: 150 male and female infants from a newborn nursery of the University of California at Los Angeles Hospital. Approximately 80 percent of the infants will be premature (high-risk), from upper-middle through lower socioeconomic groups.

Methods: Diagnostic measures from birth to 8 months of age will include an obstetrical complications scale, a newborn neurological examination, neonatal conduction velocity, EEG, 24-hour period activity cycles, visual exploration, hand movements, Gesell Developmental Schedules, and a Piagetian-type cognitive test. Diagnostic test cumulative scores will be determined and, based on these, the children will be divided into high- and low-risk groups. Half of the high-risk group will be randomly assigned to an intervention program; and the other half, as well as the low-risk group, will serve as a control. The intervention program for high-risk infants, 3 months to 2 years of age, will provide systematic training for their mothers. They will learn to work at home and in the nursery directly with the children to improve sensory motor and related developmental tasks. At 2 years of age, all infants will be tested on the Gesell Developmental Schedules, a Piagetian-type cognitive test, a language assessment scale, and an exploratory behavior test. Using these tests as dependent variables, the high-risk group with intervention will be compared with the high-risk group with no intervention to determine the success of the intervention program. The high-risk no-intervention group will be compared with the low-risk no-intervention group for predictive accuracy of diagnostic measures for developmental deficits. Many other minor variables will be examined for their relationship to the main variables, including mother-child interaction. The study will provide outpatient pediatric care, including nursing and social work services, to all infants for the duration of the study.

Duration: June 1971-June 1976.

Cooperating group(s): National Institute of Child Health and Human Development, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-BA-3 INDIVIDUAL DIFFERENCES, ATTENTION, AND DEVELOPMENT OF YOUNG INFANTS

Investigator(s): Frances D. Horowitz, Ph.D., Professor, Department of Human Dvelopment, University of Kansas, Lawrence, Kansas 66044.

Purpose: To discover characteristics of individual infants and of the environment that determine infant attending behavior.

Subjects: A varying number of normal male and female infants, ages 0 to 5 months.

Methods: The newborn infant will be tested and later retested, and laboratory studies will be conducted of the infants' habituation and attending behavior.

Findings: Stable individual differences have been found from birth to 4 weeks of age, and a relationship has been found between these differences and laboratory behavior.

Duration: January 1969-continuing.

31-BA-4 YESTERDAY'S CHILDREN

Investigator(s): Philip E. Kraus, Ph.D., Professor, Department of Education, Hunter College, 695 Park Avenue, New York, New York 10021. Address correspondence to: 40 East 84th Street, New York, New York 10028.

Purpose: To conduct a longitudinal study of children from kindergarten age to adulthood.
Subjects: 300 Negro and Caucasian children in New York City schools, studied from age 5 to 25.
Methods: Data are collected through achievement and intelligence tests, questionnaires, and observations of the subjects. Interviews are conducted with the subjects and their parents, and with teachers and school administrators. Standard and original scales are employed.
Findings: Results indicate a persistence of behavioral patterns from early childhood to adulthood. Grade 3 learning patterns were found to have predictive reliability. Similarities and differences were found in responses and growth of the Negro and Caucasian children.
Duration: 1953-1973.
Cooperating group(s): Tuch Foundation.
Publications: Kraus, P. E. *Yesterday's children*. New York: Wiley-Interscience, 1973.

Physical

31-CA-1 RESPIRATORY DISEASE AND FUNCTION IN SCHOOL CHILDREN

Investigator(s): W. W. Holland, M. D., Director; and T. Halil, Lecturer, Department of Clinical Epidemiology and Social Medicine, St. Thomas' Hospital Medical School, London, England S.E.1.
Purpose: To investigate the effect of different environmental and personal factors on the ventilatory function in school children.
Subjects: 10,971 children, ages 5 to 14, who reside in and attend school in four areas of Kent.
Methods: A prevalence and incidence study will be made of all children in the four defined areas.
Duration: 1963-1975.
Cooperating group(s): Kent County Council Health Department.
Publications: *British Medical Journal*, 1969, 2, 205-208; *Lancet*, 1968, 1, 41-43; *Milbank Memorial Fund Quarterly*, 1969, XLVII, 215.

31-CA-2 RESPIRATORY DISEASE AND FUNCTION: ENVIRONMENTAL AND FAMILIAL FACTORS

Investigator(s): W. W. Holland, M.D., Director, Department of Clinical Epidemiology and Social Medicine, St. Thomas' Hospital Medical School, London, England S.E.1.
Purpose: To assess the influence of familial, social, and enviornmental factors on the development of respiratory diseases in children during the first 5 years of life.
Subjects: 2,205 families with a newborn baby born between July 1963 and June 1965.
Methods: A prevalence study will be conducted.
Duration: 1963-continuing.
Cooperating group(s): London Borough of Harrow Health, Welfare, and Children's Department.
Publications: *British Journal of Preventive Social Medicine*, 1969, 23, 77; *Archives of Environmental Health*, 1967, 14, 157.

31-CA-3 MODE OF ADMINISTRATION OF PANCREATIC SUPPLEMENT

Investigator(s): Gordon E. Gibbs, Ph.D., M.D., Professor, Department of Pediatrics, College of Medicine, University of Nebraska, Lincoln, Nebraska 68508.
Purpose: To determine conditions for obtaining optimal benefit from pancreatic enzyme preparations.
Subjects: Children with cystic fibrosis.
Methods: Radioactive iodinated triolein is given in 5-microcurie doses with individual meals marked with carbon black. The resulting stool is counted for radioactivity to determine the percentage of the triolein absorbed. Determination is made of pancreatic lipase on a particular meal as influenced by different timing of the pancreatin dosage and accompanying alkali.
Findings: No definite difference was found in the effect of pancreatin given before or after meals.
Duration: March 1972-February 1973.
Cooperating group(s): National Cystic Fibrosis Research Foundation.

31-CA-4 BETA-GLUCURONIDASE AND RNA OF PHYTOHEMAGGLUTININ STIMULATED CULTURED LYMPHOCYTES IN CYSTIC FIBROSIS

Investigator(s): Gordon E. Gibbs, Ph.D., M.D., Professor; and Guy D. Griffin, Ph.D., Research Instructor, Department of Pediatrics, College of Medicine, University of Nebraska, Lincoln, Nebraska 68508.
Purpose: To further explain cellular abnormalities in cystic fibrosis, and to develop a test for the heterozygous state.
Subjects: 90 patients with cystic fibrosis, ages 1 to 28, and various control patients from hospitals and clinics.
Methods: Lymphocytes are separated from blood samples by glass bead column, placed in tissue culture, stimulated with phytohemagglutinin radioactive methionine is added, and incorporation of radioactive methyl from the methionine into RNA protein and beta-glucuronidase is determined. Samples are studied from cystic fibrosis and noncystic fibrosis subjects, and from heterozygous subjects.
Findings: Lowered beta-glucuronidase level of phytohemagglutinin was found to stimulate lymphocytes in cystic fibrosis. Beta-glucuronidase appeared in two fractions, one convertible to the other by RNAase. The first fraction was much more susceptible to RNAase action in cystic fibrosis subjects than in controls.
Duration: July 1969-June 1974.
Cooperating group(s): National Cystic Fibrosis Foundation.
Publications: Griffin, G. D. and Gibbs, G. E. Lysosomal enzymes of cultured white blood cells in cystic fibrosis. *Proceedings of the Society of Experimental Biology and Medicine*, 1971, 137, 438.

31-CC-1 DEVELOPMENT OF RIGHT EAR ADVANTAGE IN DICHOTIC LISTENING TASKS AS A FUNCTION OF AGE AND SEX

Investigator(s): Charles I. Berlin, Ph.D., Professor; Larry F. Hughes, Ph.D., Assistant Professor; Sena Lowe-Bell, Ph.D., Assistant Professor; and Harriet L. Berlin, M.A., Research Assistant, Department of Otorhinolaryngology, Medical Center, Louisiana State University, New Orleans, Louisiana 70119.

Purpose: To study the development of the right ear advantage for dichotic speech materials and the asymmetry of the brain for speech processing in children.
Subjects: 150 boys and girls, 30 of each age: 5, 7, 9, 11, and 13. All children are right handed and normal in peripheral hearing and speech.
Methods: Two different syllables from the pool /pa/, /ta/, /ka/, /ba/, /da/, or /ga/ were presented simultaneously, one to each ear. The children were asked to check two syllables on a prepared list. Children, ages 7 to 13, were able to complete this list; however, the 5-year olds had to speak back the syllable they heard. In all cases, two responses were demanded. Data were analyzed in two parts. The children, ages 7 to 13, were grouped separately from the 5-year olds because of the necessary limitations in data collection technique.
Findings: Right ear advantages, which are of the same magnitude as seen in children age 13, are seen in children as young as age 5. No sex differences were seen in children from ages 5 to 13. Phonetic analysis and analysis of interactions reveal that voiceless consonants are more generally reported accurately than voiced consonants.
Duration: January 1972-October 1972.
Cooperating group(s): Public Health Service, U. S. Department of Health, Education, and Welfare.

31-CC-2 CLINICAL EVALUATION OF BABIES' RESPONSES TO SOUNDS

Investigator(s): John Bench, Ph.D., Principal Scientific Officer, Royal Berkshire Hospital, Reading, Berkshire, England.
Purpose: To describe infant behavior patterns in response to a battery of sounds, and to evaluate clinical assessments of these patterns under different kinds of viewing constraints.
Subjects: 100 clinically normal full-term neonates; 100 clinically normal 6-week-old babies; and 100 clinically normal 6-month-old babies; both sexes.
Methods: Teams of observers viewed videorecordings of babies' responses to a battery of test sounds, including no-sound control periods. They recorded data that included prestimulus activity, level of confidence in babies' responses, and which aspects of the behavior were used as cues.
Duration: November 1970-October 1973.
Cooperating group(s): Medical Research Council of England; University of Reading, Berkshire, England.

31-CE-1 NUTRITIONAL STUDIES ON YOUNG CHILDREN: NITROGEN BALANCE STUDIES

Investigator(s): Carmen L. Intengan, Ph.D., Assistant Research Director; and Benigna V. Roxas, M.S., Scientist IV, Food and Nutrition Center, National Science Development Board, National Institute of Science and Technology, Herran, Manila, Philippines D-406.
Purpose: To determine the nitrogen retention of high protein rice, mango, coconut flour, fish, and other protein rich food formulations from indigenous materials.
Subjects: About 8 to 10 normal boys, ages 15 to 21 months.
Methods: Each type of food will be tested for a period of 10 days, with each child serving as his own control. The first 4 days will serve as an adaptation period, and the last 6 days as a balance period. It is expected that data from 8 to 12 balance periods can be obtained from every subject.
Duration: April 1972-April 1974.
Cooperating group(s): World Health Organization.

31-CE-2 PLASMA AMINO ACID RESPONSE CURVE IN CHILDREN

Investigator(s): Nevin S. Scrimshaw, M.D., Ph.D., Head; Vernon R. Young, Ph.D., Associate Professor, and Kraisid Tontisirin, M.D., Postdoctoral Fellow, Department of Nutrition and Food Science, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.
Purpose: To evaluate the plasma amino acid approach for estimating the requirements for essential amino acids in children.
Subjects: Five boys with Down's Syndrome, ages 6 to 12.
Methods: The boys are given a fully adequate diet in which the daily protein requirement is furnished by a synthetic L-amino acid mixture. The children are studied during consecutive 5-day periods at graded decreases in deietary tryptophan intake, and the plasma tryptophan concentration is monitored in fasting and postprandial samples at the end of each diet period.
Findings: The plasma tryptophan response curve in children with Down's Syndrome is similar to that previously observed in healthy young adult male students. The estimate of the tryptophan requirement of children is 4 mg/kg body weight/day.
Duration: August 1971-continuing.
Cooperating group(s): Hathorne Regional Center, Hathorne, Massachusetts.

31-CE-3 ALLERGENICITY TO SOY BEAN

Investigator(s): Joseph H. Fries, M.D., Associate Clinical Professor, College of Medicine, Downstate Medical Center, State University of New York, 430 Clarkson Avenue, Brooklyn, New York 11203.
Purpose: To study children's soy bean sensitivity and cross-sensitivity to other legumes.
Subjects: 30 children, ages 3 to 13, who show allergic symptoms.
Methods: Observations were made on soy bean-sensitive patients who were fed soy bean milk. The duration of their exposure, and their cutaneous reactions (diagnostic) were recorded.
Findings: Results indicated that sensitivity to soy beans can be demonstrated in an allergic population, and cross-sensitivity to other legumes is possible.
Duration: Completed.
Publications: Fries, Joseph H. Studies on allergenicity of soy bean. *Annals of Allergy*, 1971, 29, 1.

31-CE-4 ORAL CYTOLOGICAL PATTERNS IN CHILDREN

Investigator(s): Robert W. Hillman, M.D., M.P.H., Professor, Department of Environmental Medicine and Community Health, College of Medicine, Downstate Medical Center, State University of New York, 450 Clarkson Avenue, Brooklyn, New York 11203.
Purpose: To relate cytological patterns of oral smears to clinical and anthropometric observations, including nutritional indices.
Subjects: Children, ages 2 to 18, who attend a health center nutrition clinic.
Methods: Cytological preparations (pap smears) were made from buccal, lingual, gingival, and labial mucosa. Cell maturation and cell size were related to weight, height, skinfolds, and clinical impressions of oral tissues.
Findings: Maturation patterns were found to vary with the clinical tissue status.
Duration: 1967-continuing.
Cooperating group(s): Red Hook Nutrition Clinic, Brooklyn; New York City Department of Health.
Publications: Hillman, R. W. Cytological granules in buccal cells: An age-related phenomena? *Journal of Gerontology*, 1972, 27, 18-21.

31-CF-1 EFFECT OF A TRIMETAPHOSPHATE (TMP) CHEWING GUM TO REDUCE DENTAL CARIES

Investigator(s): Sidney B. Finn, D.M.D., Professor of Dentistry, Institute of Dental Research, University of Alabama, 1919 Seventh Avenue South, Birmingham, Alabama 35233.
Purpose: To study the effects of trimetaphosphate (TMP) to reduce dental caries in children.
Subjects: 600 children, ages 6 to 18, at the Florida State School for the Deaf and Blind.
Methods: The children will be divided into four groups: (1) Group 1 will chew a sugar gum containing a regular 1 1/2 percent sodium trimetaphosphate, (2) Group 2 will receive a sugarless gum, (3) Group 3 will consume a sugarless gum with TMP added, and (4) Group 4 will not receive gum. Each group will chew the gum three times daily: once after breakfast, once after lunch, and once before retiring. Semiannual examinations will be made by radiographs and clinical examination.
Duration: 1971-1974.
Cooperating group(s): National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-CF-2 LONGITUDINAL STUDIES OF TWINS AND THEIR AGE MATCHED SIBLINGS

Investigator(s): Coenraad F. A. Moorrees, D.D.S., Professor, Department of Orthodontics, Forsyth Dental Center, 140 The Fenway, Boston, Massachusetts 02126.
Purpose: To obtain an accurate estimate of facial, dental, and somatic growth, including their interrelationships in growth rates and patterns and physiologic and chronologic age scales; and to determine the contribution of genetic and environmental influences to individual differences in growth.
Subjects: Twins and their siblings in the greater Boston area.
Methods: Anthropometric and cephalometric techniques will be used, including lateral jaw and hand-wrist analyses, maturation of teeth and bones, and dental cast measurements.
Duration: 1959-1976.
Cooperating group(s): Department of Biostatistics, School of Public Health, Harvard University.

31-CF-3 IMPROVED CARIES ACTIVITY TEST

Investigator(s): Frederick M. Parkins, D.D.S., Ph.D., Professor and Head; and S. H. Y. Wei, D.D.S., M.D.S., Associate Professor, Department of Pedodontics, College of Dentistry, University of Iowa, Iowa City, Iowa 52240.
Purpose: To evaluate several clinical tests used in the prediction of future dental caries occurrence.
Subjects: 200 boys and girls, ages 3 to 12.
Methods: The children are given incremental dental care and are examined at 6-month intervals. The quantity and acid production of dental plaque are measured, and the enamel surface fluoride concentration is obtained by a microsampling technique. The incidence of new carious lesions is compared with the test results for possible correlations.
Findings: Results indicate that the tests, including fluoride microsampling on primary teeth, can be reliably carried out on children.
Duration: May 1971-May 1974.

31-CF-4 THE USE OF NEUROMUSCULAR FACILITATION IN TONGUE THRUST THERAPY

Investigator(s): Mervyn L. Falk, Ph.D., Associate Professor and Director, Speech and Hearing Center, Wayne State University, Detroit, Michigan 48202.
Purpose: To investigate the validity of establishing children's normal swallow patterns at a reflexive neuromuscular level.
Subjects: 12 children, ages 43 months to 169 months, seven boys and five girls, all diagnosed as manifesting Class II malocclusion (in which the lower dental arch is distal to the upper one or both lateral halves) with concomitant tongue thrust.
Methods: Principles of neuromuscular facilitation advocated by Rood were applied to muscles of deglutition. Dental models were constructed prior to each subject's entrance into the swallowing pattern program. Subsequent models were made at 3 months, 6 months, and 12 months after the initiation of the program. Dental models for each subject were studied with regard to improvement of the vertical dimension of upper dentition. All subjects remained on the program for 6 months. Models made at 12 months were compared to models made at 6 months in order to determine whether regression had occurred.
Findings: Results indicate notable improvement in occlusion patterns for all subjects, and regression was noted in two of the subjects.
Duration: June 1970-August 1972.
Cooperating group(s): Department of Occupational Therapy and Maxillofacial Research Center, Children's Hospital of Michigan, Detroit; Department of Orthodontics, University of Detroit Dental Center, Michigan.

31-CG-1 THE SOOTHING EFFECTS OF VESTIBULAR STIMULATION

Investigator(s): David R. Pederson, Ph.D., Assistant Professor, Department of Psychology, University of Western Ontario, London 72, Ontario, Canada.
Purpose: To discover the physical parameters that determine the effectiveness of rocking.
Subjects: Approximately 240 normal, home reared infants, age 2 months, approximately equally divided by sex.
Methods: Four experiments were completed with an average of 60 infants in each study. In each study, an observer rated the infants' general activity. Activity scores during a 1-minute baseline period were used as an initial state factor. Vestibular stimulation was presented by a motorized rocker. The frequency of vestibular stimulation was varied between 0 and 90 cycles per minute. In other studies, amplitude varied between 0 and 5 inches.
Findings: Both frequency and amplitude were found to be important determinants of the soothing effects. Within the range studied, activity after 15 minutes of rocking was a negative monotonic function of frequency and amplitude. The direction of rocking appears to be relatively unimportant.
Duration: April 1968-March 1973.
Cooperating group(s): Ontario Mental Health Foundation.
Publications: Pederson, D. R. and Ter Vrugt, D. The influence of amplitude and frequency of vestibular stimulation on the activity of two-month-old infants. *Child Development* (in press); Ter Vrugt, D. and Pederson, D. R. The influence of vertical rocking frequencies on the arousal level of two-month-old infants. *Child Development* (in press).

31-CH-1 PRIVATE SPEECH: THE EFFECT OF PRESENCE OF OTHERS, TASK, AND INTRAPERSONAL VARIABLES

Investigator(s): Jane R. Dickie, Ph.D., Assistant Professor, Department of Psychology, Hope College, Holland, Michigan 49423.
Purpose: To clarify the topography, development, and function of private (egocentric) speech, and to examine the effect of situational and intrapersonal variables on the frequency and type of children's private speech.
Subjects: 60 children: 10 boys and 10 girls in each of three age groups: 2 1/2 to 4; 4 to 5; and 6 to 8. All subjects were children of married students at Michigan State University. The children had an average IQ of 113.
Methods: The children were scored on mental age, IQ, impulsivity, self-control, persistence, and success at a task. All children were videotaped under two conditions of person present (mother and peer) and two conditions of activity (task and free play). The videotapes were rated for frequency and form of private and social speech. Private and social speech were analyzed in seven 2 X 2 X 3 X 2 X 2 nested-factorial analyses of variance. Intrapersonal variables were analyzed by a correlation matrix.
Findings: Increasing chronological age and mental age correspond to a decrease in impulsivity, and increase in self-control, and an increase in success and persistence at a difficult task. Immature children persisted in the use of lower levels of private speech and social speech, especially in the task situation. Both the activity and the person present affected the frequency and form of private speech.
Duration: July 1971-August 1972.
Cooperating group(s): Department of Psychology, Michigan State University.

31-CH-2 SPEECH DISCRIMINATION IN EARLY INFANCY

Investigator(s): M. Sam Rabinovitch, Ph.D., Professor; and Sandra E. Trehub, M.A., Department of Psychology, McGill University, P.O. Box 6070, Montreal101, Quebec, Canada.
Purpose: To discover the variety and complexity of human speech reception of the young infant.
Subjects: Infants, ages 3 to 17 weeks.
Methods: A sound stimulus is brought on by the infant's sucking response. After he has habituated to the first stimulus, a different stimulus is presented. The reaction of sucking is considered evidence of discrimination.
Findings: Results indicate that the young infant can discriminate a wide variety of speech sounds.
Duration: 1970-1973.
Cooperating group(s): National Research Council of Canada.
Publications: Trehub, S. E. and Rabinovitch, M. S. Auditory-linguistic sensitivity in early infancy. *Developmental Psychology*, 1972, 6, 74-77.

Intellectual

31-DA-1 THE DEVELOPMENT OF REASONING, MORAL JUDGMENT, AND MORAL CONDUCT IN NORMALS AND RETARDATES

Investigator(s): Beth Stephens, Ph.D., Professor, Department of Special Education, Temple University, Philadelphia, Pennsylvania 19122.

Purpose: To compare the development of normal and retarded children over an 8-year period in the areas of reasoning, moral judgment, and moral conduct.

Subjects: 75 normal children (IQ: 90-110) and 75 retarded (IQ: 50-75), equally divided by sex into three age groups: 6 to 10 years, 10 to 14 years, and 14 to 18 years at the initiation of the study.

Methods: Piagetian assessments of reasoning and moral judgment are employed, and ongoing moral conduct is observed in structured situations. The children are retested at 2-year intervals. Analysis of variance techniques are used to determine the differences among various age groups of normal and retarded children and to compare performance by the same groups of subjects at 2-year intervals. A factor analysis is used to determine the relationships among the measures.

Findings: All three age groups of normal and retarded children show continued development in all three areas. Their development continues beyond age 18. The data from factor analysis indicates that Piagetian reasoning assessments measure areas distinct from those measured by standard measures of intelligence.

Duration: February 1967-July 1975.

Cooperating group(s): Social and Rehabilitation Service, U. S. Department of Health, Education, and Welfare.

Publications: Stephens, W. B. and McLaughlin, J. A. Analysis of performance of normals and retardates on Piagetian reasoning assessments as a function of verbal ability. *Perceptual and Motor Skills*, 1971, 32, 868-870; Stephens, W. B.; McLaughlin, J. A.; and Glass, G. V. Factorial structure of reasoning. *Developmental Psychology*, 1972, 6(2), 343-348; Stephens, W. B.; McLaughlin, J. A.; Mahaney, Jr., E. J.; and Moore, G. W. Developmental gains in reasoning, moral judgment, and moral conduct in normals and retardates. *American Journal of Mental Deficiency* (in press).

31-DB-1 PARENT BEHAVIOR DETERMINANTS OF LOCUS OF CONTROL AND COGNITIVE DEVELOPMENT

Investigator(s): Mark W. Stephens, Ph.D., Associate Professor, Department of Psychological Sciences, Purdue University, Lafayette, Indiana 47907.

Purpose: To identify the parent and teacher behavior determinants of the development of internal control expectancies in preschool age children; and to identify the effect of internal control expectancies and mother-child interaction patterns on cognitive development and cognitive styles which may mediate intellectual development.

Subjects: Approximately 130 nursery school boys and girls, age 4, from white middle class backgrounds: 35 from a university laboratory school; 55 from parent cooperative nurseries; and 40 from a day care center.

Methods: The Stephens-Delys Reinforcement Contingency Interview will be used to measure locus of control development, and structured mother-child interactions will be videotaped to

assess parental behavioral styles. The Peabody Picture Vocabulary Test will be used, along with various discrimination learning, probability learning, motor learning, cognitive tempos, attention development, and perceptual style tasks. Analyses will be made by intragroup correlations. The experimenter's behavior will be manipulated along various dimensions in one sample to test immediate teacher behavioral determinants of performance on cognitive tasks.

Duration: September 1971-August 1974.

Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare; Department of Child Development and Family Life Nursery School, Purdue University.

Publications: Stephens, M. W. Cognitive and cultural determinants of early IE development. Symposium paper presented at the American Psychological Association Convention, 1971; Stephens, M. W. Dimensions of locus of control: Impact of early educational experience. Paper delivered at the American Psychological Association Convention, 1972.

31-DB-2 COGNITIVE PERFORMANCE AS A FUNCTION OF AGE OR SOCIOECONOMIC CLASS

Investigator(s): Vladimir Pishkin, Ph.D., Chief Research Psychologist, Veterans Administration Hospital, 151A, 921 N.E. Thirteenth Street, Oklahoma City, Oklahoma 73104; and Diane J. Willis, Ph.D., Clinical Psychologist, Health Sciences Center, University of Oklahoma, Oklahoma City, Oklahoma 73104.

Purpose: To compare performances of lower and middle class children of different age groups on a concept identification task.

Subjects: 120 white boys and girls who attend kindergarten and grades 1 and 2 in a public school system, equally divided between middle and lower classes.

Methods: A 2 X 3 factorial design was employed with two levels of socioeconomic class and three levels of age. Data will be analyzed by analysis of variance.

Findings: Middle class boys outperformed middle class girls, while the reverse was found in the lower class groups. A significant interaction of class by age was found: lower class younger children were superior to the middle class groups.

Duration: June 1971-June 1973.

31-DB-3 CHILDREN'S DRAWINGS: CHANGES IN REPRESENTATION BETWEEN THE AGES OF 5 AND 7

Investigator(s): Diana Korzenik, Ed.H., Lecturer, Child Study, Lincoln Filene Center, Tufts University, Medford, Massachusetts 02155.

Purpose: To ascertain the cognitive changes in children that might account for the changes in form characteristics in their drawings, and to determine how children arrive at a comprehensible graphic image.

Subjects: 82 pairs of boys and girls, ages 5 to 7, from two urban populations.

Methods: Each child is given a task in which he is asked to represent a given word in a pictorial representation so that another child can guess his word from the picture. Children's performances were measured in terms of their verbal and motor behavior, their answers to a questionnaire, and the drawings.

Findings: The 5-year-old children understood the task differently than did the 7-year-olds. The younger children's drawings often had only minimal graphic marks, which they elaborated by verbal explanation. The older children realized that pictorial representation required visual rather than verbal articulation.

Duration: January 1971-April 1972.

Cooperating group(s): Project Zero, Harvard Graduate School of Education.

31-DC-1 AUTONOMY IN MEMORY IN YOUNG CHILDREN

Investigator(s): Richard John Fiene, B.A., Research Assistant; and Aaron S. Carton, Ph.D., Associate Professor, Department of Psychology, State University of New York at Stony Brook, Stony Brook, New York 11790.

Purpose: To investigate the relationship of autonomous and experimenter supplied mnemonics in children's rote recall, and to determine at what age a child will function more efficiently in a learning task using his own devices in recall versus an experimenter's device in learning the same task.

Subjects: 96 white, middle class boys and girls, ages 5 to 14, equally divided by sex, who attend grades K to 9 in public schools.

Methods: The children were required to learn lists of 15 Turkish words and their English equivalents.Four procedures were followed in the learning task: (1) the experimenter supplied the Turkish word and its English equivalent and then the mnemonic; (2) the experimenter supplied the Turkish word and its English equivalent, and the subject supplied the mnemonic; (3) the experimenter first supplied the mnemonic and then the Turkish word and its English equivalent; and (4) the subject supplied the mnemonic, and then the experimenter presented the Turkish word and its English equivalent.

Findings: Learning was improved in conditions (1) and (3) for children ages 5 to 8. There were no significant differences in either condition or procedure for children ages 9 to 11. Learning was improved in conditions (2) and (4) for children ages 12 to 14.

Duration: September 1969-December 1971.

Publications: Copies of the report are available from the investigator.

31-DC-2 THE DEVELOPMENT OF INFANT ATTENTION AND MEMORY

Investigator(s): Leslie B. Cohen, Ph.D., Associate Professor, Department of Psychology, University of Illinois, Urbana, Illinois 61801.

Purpose: To examine the mechanisms by which infants process visual information, store that information, and use it in subsequent learning.

Subjects: Approximately 250 male and female infants, ages 6 weeks to 4 months, primarily from middle class backgrounds, who were not premature and have no visual handicaps.

Methods: Of the six experiments in progress, most involve habituating infants to one visual pattern followed by a test in which the familiar pattern and novel patterns are presented. The responses measured were the infants' latencies in turning to the visual pattern and their fixation times once they had turned. In most of the studies, fixation times were recorded by an observer who watched the infant's head and eyes over a closed circuit television system. In most cases the data were analyzed by analyses of variance.

Findings: Infants, 6 and 8 weeks old, will prefer a familiar pattern to a novel one; while at 10 to 12 weeks old, they will prefer the novel pattern to the familiar one. Infant attention should be separated into two independent processes: attention getting and attention holding. Different aspects of the stimuli affect these two processes (e.g., the size of the pattern tends to be more influential in the attention-getting process, while the complexity of the pattern is more influential in the attention-holding process). At 4 months of age, male infants tend to process the information and habituate more rapidly than do females, while female infants tend to learn more from prior exposure to the stimuli than males.

Duration: January 1970-December 1974.

Cooperating group(s): Children's Research Center, University of Illinois; Meyer Zone Center, Decatur, Illinois.

Publications: Cohen, L. B. Attention-getting and attention-holding processes of infant visual preferences. *Child Development* (in press).

31-DC-3 EFFECT OF RITALIN ON LEARNING AND ATTENTION IN HYPERACTIVE, LEARNING DISABLED CHILDREN

Investigator(s): Allen Sroufe, Ph.D., Assistant Professor, Department of Child Development; Barbara Sonies, M.A., Supervisor, Division of Speech Pathology; and Francis Wright, M.D., Associate Professor, Department of Pediatric Neurology, University of Minnesota, Minneapolis, Minnesota 55455.

Purpose: To study the effect of the drug, ritalin, on selected processes of learning and specific learning and reading tasks in children with reported learning disability.

Subjects: 42 white, middle class boys, ages 6-0 to 10-11, with diagnoses of hyperactivity and learning disorders but with no other neurological or physical handicaps.

Methods: Phase I: The subjects will initially be given the following battery of tests: neurological examination, EEG, visual acuity, auditory acuity, baseline psychological tasks, and the Jastak Wide Range Achievement Test. The subjects will be matched by age, sex, grade and reading levels, and neurological status. Phase II: The children will then be administered the Frostig Figure-Ground Subtest, Ayres Figure-Ground Subtest, Berry Buktenica Visual Motor Form Integration Test, Draw-A-Man Test, a digit span test, the Illinois Test of Psycholinguistic Abilities, the Bond-Baylow-Hoyt Diagnostic Test, and memory for sentence tests, including the Spencer and Schuell Subtests. A paired associate and category learning task, which are felt to correlate with academic success and have adequate upper and lower limits, will be administered to determine if changes in learning have occurred. Phase III: A double blind method of drug administration will be used. Half of the children will be placed on an optimal dosage of ritalin twice a day for 6 weeks. The other half of the children will be given a placebo for the same 6-week period. The same test battery will be readministered when the drug or placebo has been in effect for 6 weeks, but the tests will be given in a different order when possible. In Phase III, only measures of visual attention, reaction time, motor response differentiation, response inhibition, maintenance of attention, autonomic lability, and distractibility will be assessed.

Duration: 1971-continuing.

Cooperating group(s): National Institute of Child Health and Human Development, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare; Graduate School, University of Minnesota.

31-DC-4 THE DEVELOPMENT OF A COMMUNICATIONS MODEL FOR COMMUNITY AGENCIES IN THE COMMUNITY OF PINCHER CREEK TO INCREASE THE EFFECTIVENESS OF THEIR WORK IN MEETING THE LEARNING NEEDS OF PRIMARY SCHOOL CHILDREN

Investigator(s): D. M. Lampard, Ed.D., Professor; V. Dravland, Ed.D., Associate Professor; and M. McGregor, B.Ed., Academic Assistant, Faculty of Education, University of Lethbridge, Lethbridge, Alberta, Canada.

Purpose: To develop a means for increasing the effectiveness of the work of community agencies to meet the learning needs of primary school children.

Subjects: 409 children in grades 1 through 3 of three schools in Pincher Creek, Alberta, Canada; staff members and administrators in the school district under study; a guidance clinic; a health center; and various social service agencies.

Methods: Three subgroups of children were identified: Group A, 192 children, including four high, four average, and four low achievers from 16 classrooms; Group B, 48 children, including one high, one average, and one low achiever from each classroom; and Group C, five selected students with various learning problems. Learning needs are identified in four main areas: (1) physical and neurological; (2) social, emotional, and /or behavioral; (3) language development;

and (4) learning skills, including word knowledge, comprehension, and problem solving. Group A was tested on word recognition and word attack, and Group B received additional tests of visual and auditory acuity, lateral awareness, and language. Parents of the students in Group B were asked by questionnaire and/or interview what they perceived themselves as doing to aid the development of a child in grades 1 through 3. A chi-square test was used to compare the relationship between some learning needs and achievement level and grade placement.

Findings: Results indicate that the children in grades 1 to 3 have specific learning needs which can be identified through tests and observations. Although some of these learning needs are being met by the agencies, there are others which remain unmet.

Duration: September 1970-September 1972.

Cooperating group(s): Pincher Creek School Division No. 29; Department of Education, Government of Alberta.

31-DC-5 LEARNING IN CHILDREN: MULTIPLE CLASSIFICATION

Investigator(s): Ronald K. Parker, Ph.D., Adjunct Professor, Department of Developmental Psychology, Harlem Research Center, City University of New York, 144 West 125th Street, New York, New York 10027.

Purpose: To develop a hierarchically ordered instructional program in multiple classification that (1) is generated from a task analysis of the natural developmental sequence of the acquisition of logical operations, and (2) serves as a diagnostic instrument and adapts to any child's particular stage of development.

Subjects: 300 boys and girls, ages 5 to 7, who attend New York City public schools, equally divided by sex.

Methods: Pretest and posttest data were collected by three experimenters. Each child was asked to complete 36 incomplete matrices before and after training. Three experimental conditions were used along with a no-contact control group. Data were analyzed by analysis of variance and analysis of covariance.

Findings: A hierarchy of the development of skills in the area of classification has been firmly established and a hierarchically sequenced instrucional program has been developed. The program has proven to be of optimal benefit when compared with other experimental treatment approaches and control groups.

Duration: June 1970-May 1973.

Cooperating group(s): National Institute of Child Health and Human Development, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-DC-6 SURPRISE AND MEMORY AS INDICES OF CONCRETE OPERATIONAL DEVELOPMENT

Investigator(s): Thomas Achenbach, Ph.D., Assistant Professor, Department of Psychology, Yale University, 333 Cedar Street, New Haven, Connecticut 06510.

Purpose: To develop measures of surprise to contrived changes in quantitative and qualitative properties and memory for such properties, and to test cognitive development hypotheses with these measures.

Subjects: 136 normal (ages 2 1/2 to 8) and 64 retarded (ages 8 to 35) males and females, mostly white, with a mean mental age of 5 years.

Methods: Study I: Normal and retarded subjects, matched for mental age, will be compared on surprise reactions to contrived changes of color, number, length, and quantity. Study II:

A comparison will be made of surprise reaction and memory for color and number for the normal children, ages 2 1/2 to 5.

Findings: Study I: The matched normal and retarded subjects were found to be very similar in nonverbal conservation performance. Study II: Surprise to a contrived change in color or number correlates highly with correct memory for color and number, respectively, in normals. Both surprise and memory precede correct conservation reasons.

Duration: 1969-1972.

Cooperating group(s): National Institute of Child Health and Human Development, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-DD-1 PATTERNS OF INTELLECTUAL DEVELOPMENT DURING CHILDHOOD AND ADOLESCENCE

Investigator(s): M. Y. Quereshi, Ph.D., Professor and Chairman, Department of Psychology, Marquette University, 617 North Thirteenth Street, Milwaukee, Wisconsin 53233.

Purpose: To study the changes in factorial patterns of cognitive characteristics.

Subjects: 514 children, ages 5 to 18, equally divided by sex.

Methods: The children were administered the Wechsler Intelligence Scale for Children (WISC) and the Wechsler Adult Intelligence Scale (WAIS). The children were selected according to a two-stage probability sampling procedure at seven age levels between ages 5 and 18.

Findings: The differentiation hypothesis was not confirmed. Results did agree with past factor analytic findings of the WISC and WAIS.

Duration: June 1970-December 1971.

Publications: *Genetic Psychology Monographs* (in press).

31-DD-2 RESEARCH ON CULTURE BIAS IN MENTAL AND SCHOLASTIC TESTS

Investigator(s): Arthur R. Jensen, Ph.D., Professor, Department of Educational Psychology, Institute of Human Learning, University of California at Berkeley, Berkeley, California 94720.

Purpose: To determine the kinds and extent of biases in ability tests as they are used in schools, with respect to Negro and Mexican-American minorities.

Subjects: Approximately 15,000 Black, Chicano, and white children in various school districts in California.

Methods: Individual and group testing will be conducted on a number of standard and experimental tests. Testing conditions (e.g., race of the examiner) and forms of instruction will be experimentally controlled. Both verbal and nonverbal tests will be used. Test results will be analyzed at the item level in order to detect the kinds and degrees of biases in item content. The experimental tests will be used to broaden the range of abilities measured.

Findings: Results indicate that the predictive and concurrent validities of the standard tests are not significantly different for minority and majority pupils. Some differences were found in ability profiles.

Duration: September 1971-June 1973.

Cooperating group(s): Various school districts in California.

31-DD-3 THE DEVELOPMENTAL PROFILE

Investigator(s): Gerald D. Alpern, Ph.D., Director of Research, Child Psychiatry Services, School of Medicine, Indiana University, Bloomington, Indiana 47405; and Thomas J. Boll,

Ph.D., Research Assistant Professor, Child Development and Mental Retardation Center, University of Washington, Seattle, Washington 98105.
Purpose: To provide a developmental screening instrument that would evaluate children from birth to preadolescence without bias as a function of sex, race, or socioeconomic status.
Subjects: 300 normal, Negro and Caucasian boys and girls, from three social classes.
Methods: The inventory consists of 217 items in five scales: physical, self-help, social, academic, and communication. An IQ equivalent score may be derived from the instrument. After the inventory had been developed over a 3-year period, a version existed that was considered ready for standardization. The standardization version was administered only to subjects who passed a preinterview questionnaire designed to screen out children with any reasonable chance of suffering any developmental delay. The data were then subjected to an item analysis to eliminate items that had low validity or contained bias. Validity and reliability studies were conducted.
Findings: All findings of the standardization study and the various reliability and validity studies indicate that the instrument is a useful tool for the multidimensional screening of children.
Duration: June 1970-July 1972.
Cooperating group(s): Marion County Association for Retarded Children, Indiana.
Publications: Copies of a manual describing the instrument are available from: Psychological Development Publications, 7150 Lakeside Drive, Indianapolis, Indiana 46278.

31-DE-1 EMERGENCE OF MONETARY CONCEPTS IN YOUNG CHILDREN

Investigator(s): Gloria Edmunds, B.S.; and Keturah Whitehurst, Ph.D., Professor, Department of Psychology, Virginia State College, Petersburg, Virginia 23803.
Purpose: To study the emergence of monetary concepts in children.
Subjects: 10 boys and girls at each of seven age levels, ages 2 to 8, from a community action program for children of low socioeconomic status; and a control group of middle class children.
Methods: Growth curves will be plotted for the children of different age levels in terms of the percentage of children who succeed at four experimental tasks.
Duration: April 1971-March 1972.
Cooperating group(s): Children's House; Matoaca Elementary School.

31-DF-1 IMPROVING CHILDREN'S CREATIVE PROBLEM SOLVING ABILITIES

Investigator(s): Donald J. Treffinger, Ph.D., Associate Professor, School of Education, Bailey Hall, University of Kansas, Lawrence, Kansas 66044.
Purpose: To study the effects of instructional programs in fostering creativity or creative thinking and problem solving criteria among grade 5 pupils.
Subjects: Approximately 700 boys and girls in grade 5 who attend public schools in two urban areas of Indiana.
Methods: Two levels of four independent variables will be used: two creativity programs (Purdue Creativity Training Program and Productive Thinking Program), two levels of teacher participation in creativity instruction (discussion and nondiscussion methods), two rates of presentation of the program (4 weeks and 8 weeks), and two levels of Teacher's Divergent Thinking Ability. The dependent variables will include the Torrance Tests of Creative Thinking and several problem solving measures.
Findings: Significant training effects were found for both programs on most outcome criteria. The Productive Thinking Program was less influenced by presentation rate and the teacher variables. The Purdue program was found to be most effective when used over an 8-week period by

teachers high in Divergent Thinking Ability who used the discussion technique. Both experimental and control subjects made pre-post gains in creative thinking, but the experimental group gains were generally significantly greater.

Duration: 1970-1972.

Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

31-DF-2 DEVELOPMENTAL ASPECTS OF SCIENTIFIC REASONING

Investigator(s): Harold J. Fletcher, Ph.D., Professor, Department of Educational Research, Florida State University, Tallahassee, Florida 32306; and William F. Cox, Jr., Ph.D., Assistant Professor, School of Education, Florida A & M University, Tallahassee, Florida 32307.

Purpose: To investigate developmental changes in children's ability to induce picture or pattern identities.

Subjects: Experiment I: Seven boys and seven girls in each of seven age groups: 5, 6, 7, 8, 9, 10, and 11. Experiment II: 10 boys and 10 girls in each of six age groups: 9, 10, 11, 12, 13, and 14.

Methods: In Experiment I, subjects removed picture covering pieces, one at a time, to name the pictures as soon as possible. In Experiment II, the stimuli used were patterns rather than pictures. The design included a matching control group yoked to the experimental group.

Findings: Experiment I: The ability to use incomplete information improved with increased age, but a performance plateau occurred between ages 8 and 11. Experiment II: The yoked control subjects offered hypotheses more often, earlier, and were more correct than the experimental subjects.

Duration: March 1972-September 1972.

Cooperating group(s): Regional Research Program, National Center for Educational Research and Development, Office of Education, U. S. Department of Health, Education, and Welfare.

31-DG-1 PERCEPTUAL SKILLS PROJECT

Investigator(s): Jerome Rosner, O.D., Research Associate, Learning Research and Development Center, University of Pittsburgh, 160 North Craig Street, Pittsburgh, Pennsylvania 15213.

Purpose: To identify those perceptual skills that appear to be directly related to the basic classroom tasks of reading and arithmetic at the primary level; to determine whether such skills can be trained effectively; to determine whether the effects of that training can be measured in classroom behaviors; and to describe the training in a way that will allow it to be implemented and managed in the classroom of a public school.

Subjects: Children, ages 3 to 7, enrolled in the Learning Research Development Center (public) schools.

Methods: Various methods have been used, including empirical validation of objective sequences and controlled studies. Data will be analyzed primarily through multivariate analysis.

Findings: Visual motor skills were found to relate closely to primary arithmetic achievement, while auditory perceptual skills are related closely to reading achievement. It was found that perceptual skills can be taught, and that transfer effects can be demonstrated.

Duration: January 1969-January 1973.

Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare; Ford Foundation.

31-DH-1 SECOND LANGUAGE LEARNING IN CHILDREN

Investigator(s): Susan M. Ervin-Tripp, Ph.D., Professor, Department of Rhetoric, University of California at Berkeley, Berkeley, California 94720.
Purpose: To relate the process of children's acquisition of a second language to the stage of first language at the time of exposure and to the stage of intellectual development, including prior reading training.
Subjects: Approximately 27 children, ages 4 to 9, who constitute almost the entire population of anglophones learning French within a year of arrival at schools in and near Geneva.
Methods: Tests of English comprehension of passives, indirect/direct objects, and SVO (subject-verb-object) versus semantic strategy of interpreting anomalous sequences (e.g., "boy open box"). Similar tests of French comprehension will be conducted that include pronouns. Tests of liaison, phonetic imitations, and emphatic stress will also be included. Piagetian operativity tests which depend on the child's age will include conservation of liquids, volume, and displacement.
Findings: A sharp change in facility with grammatical structures, such as pronouns in French, occurs around age 6 1/2 and is possibly related to prior English reading or to the content of the curriculum in French which is more language-oriented after age 6.
Duration: February 1972-July 1972.
Cooperating group(s): Department of Psycholinguistics, University of Geneva; Language Behavior Laboratory, University of California.

31-DH-2 AN INVESTIGATION INTO LINGUISTIC CUES INVOLVED IN ENGLISH NOUN PLURALIZATION OF 6-YEAR-OLD MEXICAN-AMERICAN CHILDREN

Investigator(s): Luiz F. S. Natalicio, Ph.D., Associate Professor; and Diana S. Natalicio, Ph.D., Assistant Professor, Department of Linguistics, University of Texas at El Paso, El Paso, Texas 79968.
Purpose: To investigate the effects of initial consonants, especially /s/, on the pluralization of English nouns by Anglo and Chicano first graders.
Subjects: 120 grade 1 boys and girls, equally divided by sex, half of whom are native English speakers and half of whom are native Spanish speakers, residing in El Paso, Texas.
Methods: A test instrument consisting of nonsense syllable trigrams is constructed based on linguistic descriptions of English pluralization. Accompanied by visual stimuli, this instrument is administered to the children. Data will be analyzed by multiple regression analyses.
Duration: March 1972-August 1973.

31-DH-3 CROSS-CULTURAL COGNITIVE STUDIES

Investigator(s): Jacques Mehler, Ph.D., Maitre de Recherche, Laboratoire de Psychologie, Centre National de Recherches Scientifiques, Maison des Sciences de l'Homme, 54 Boulevard Raspail, Paris 6eme, France.
Purpose: To construct a model of performance on the adult in order to determine the development of mechanisms the young child employs to deal with the environment.
Subjects: French students in primary schools and universities.
Methods: An attempt will be made to construct a model of performance in the adult so as to characterize the stable state of behavior. Research will be conducted in the area of language perception. An investigation will be made of the effects of structure in their relation to the perception processes.
Duration: 1968-continuing.

Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.
Publicationss: Carey, P.; Mehler, J.; and Bever, T. G. Judging the veracity of ambiguous sentences. *Journal of Verbal Learning and Verbal Behavior*, 1970, 9, 243-254; Mehler, J. Studies in language and thought development. In R. Huxley and E. Ingram (Eds.), *Studies in language acquisition: Methods and models*. London: Academic Press, 1971. Pp. 201-229; Bever, T. G.; Mehler, J.; and Valian, V. Linguistic capacity of young children. In T. G. Bever and W. Weksel (Eds.), *The structure and psychology of language*. New York: Holt, Rinehart & Winston (in press).

31-DH-4 LANGUAGE ACQUISITION: PARAPHRASE

Investigator(s): Carlota S. Smith, Ph.D., Assistant Professor, Department of Linguistics, University of Texas, Austin, Texas 78746.
Purpose: To study the development of children's ability to paraphrase, and to relate the findings of the study to adult paraphrase patterns and the development of linguistic and cognitive skills.
Subjects: Approximately 100 boys and girls, ages 5 to 7, in day care centers and nursery schools, who are native speakers of English.
Methods: Judgment and elicitation studies will be conducted. Toy animals, large enough for the children to hold in their laps, are used as the speakers with whom the child interacts and whose utterances he judges.
Findings: Children's paraphrases follow main patterns of adults--reversing of surface structure topic and comment. Some structures are difficult for children to paraphrase, suggesting that these structures may be analyzed differently by children and adults (in particular, the passive).
Duration: 1972-continuing.

31-DH-5 CHILDREN'S RESPONSES TO WELL-FORMED AND TELEGRAPHIC COMMANDS

Investigator(s): Michael D. Smith, M.A., Research Fellow; and Kenneth F. Ruder, Ph.D., Research Associate, Bureau of Child Research, University of Kansas, Lawrence, Kansas 66044.
Purpose: To test the hypotheses that (1) telegraphic, or two-word commands, are more effective in eliciting obedience from the holophrastic child (a child at the one-word stage of language production), and (2) adult or well-formed commands are more effective when dealing with the telegraphic child (a child at the two- to three-word stage of language production).
Subjects: Eight normal children, ages 19 to 33 months, whose parents are native speakers of English; eight normal Spanish-speaking children; and eight retarded children.
Methods: The subjects in each group were divided into two subgroups of four children each on the basis of their mean length of utterance. Children with a mean length of utterance approximating one composed the holophrastic group, and children with a mean length of utterance approximating two composed the telegraphic group. The stimuli were composed of simple commands varied in such a manner that different responses to stimuli (whose semantic content remained stable while syntactic structure varied) might serve as evidence that a subject interprets stimuli as being or not being bizarre (e.g., "Hand me the spoon" versus "Hand spoon"). Obedience was defined as a correct response to a given command. Results were computed by analysis of variance.
Findings: Neither the holophrastic children nor the telegraphic children demonstrated a preference for either well-formed or telegraphic commands.
Duration: September 1971-completed.
Cooperating group(s): National Institute of Child Health and Human Development, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-DH-6 LINGUISTIC DEVELOPMENT OF AN ENVIRONMENTALLY DEPRIVED CHILD

Investigator(s): David Rigler, Ph.D., Chief Psychologist, Children's Hospital of Los Angeles, 4614 West Sunset Boulevard, Los Angeles, California 90027; and Victoria A. Fromkin, Ph.D., Associate Professor, Department of Linguistics, University of California at Los Angeles, Los Angeles, California 90024.
Purpose: To study the linguistic development of an environmentally deprived child.
Subjects: A 14-year-old girl who has been severely environmentally and socially deprived for over 11 years.
Methods: The girl's comprehension and production of language will be observed and tested through special tests which have been developed. Videotape recordings will be used.
Findings: When the girl first entered the hospital, she had no speech and little control of her vocal chords (e.g., no swallowing control). Her language and articulatory controls are developing. After 1 year at the hospital, her language comprehension and production are equivalent to those of a normal child 18 months of age.
Duration: November 1970-continuing.
Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-DH-7 UNDERSTANDING DISORDERED LANGUAGE

Investigator(s): H. Goehl, Ph.D., Professor, Department of Speech, Temple University, Philadelphia, Pennsylvania 19122.
Purpose: To explore the relation between the grammar of disordered speakers and the grammar of normal speakers.
Subjects: Preschool children, both disordered and normal speakers.
Methods: Comparisons will be made of the linguistic judgments and semantic interpretations made by individuals familiar and unfamiliar with the children.
Duration: September 1971-continuing.
Publications: Fodor, J. and Katz, J. J. *Structure of language: Readings on the philosophy of language*. Englewood Cliffs: Prentice-Hall, 1964.

31-DH-8 THE DEVELOPMENT OF THE CONCEPT OF SPEED AND ITS ASSOCIATED LANGUAGE

Investigator(s): Ruth Seltzer Kowalski, Ph.D., Department of Psychology, Teachers College, Columbia University, New York, New York 10027.
Purpose: To explore language-thought relations in young children through the study of the language used by children in talking about the concept of speed.
Subjects: 76 elementary school children: 39 boys and 37 girls, ages 5-6 to 9-9, randomly selected from grades kindergarten through 3 of a public school in northern New Jersey.
Methods: All children were tested individually with the same series of 22 tasks, which were designed to (1) elicit descriptions of moving toys, (2) test for comprehension of basic speed terms, and (3) probe the understanding of speed as a relation. Scoring procedures were based on Piaget's analysis of speed. Scalogram analysis was applied to eight speed tests. The children were divided into four groups on the basis of their understanding of speed. Each group was compared on the basis of language usage.
Findings: Language usage was found to be different for children at different levels of understanding. Language and conceptual development seemed to go through similar stages, but there was no evidence for conceptual or linguistic priority.
Duration: May 1970-May 1972.

31-DH-9 STRUCTURAL AND RELATIONAL COMPONENTS OF EXTENDED VERBAL ELABORATION IN PAIRED-ASSOCIATE LEARNING

Investigator(s): James E. Turnure, Ph.D., Associate Professor; and Martha L. Thurlow, M. A., Research Fellow, Research, Development, and Demonstration Center in Education of Handicapped Children, 14 Pattee Hall, University of Minnesota, Minneapolis, Minnesota 55455.
Purpose: To explore the effect of increasing the number of relations in a given syntactic elaboration and at the same time to separate this effect from the facilitation previously attributed to the paragraph structure.
Subjects: 17 boys and girls, ages 56 to 61 months, who attend a private nursery school. The children are from middle and upper class families and have above average intelligence.
Methods: Three experimental conditions were used to explore the effects of increasing the relational content of an elaboration. Six subjects were tested in the first two conditions; five subjects were tested in the third condition. In each condition the subject was given a training trial in which each of 20 pairs was presented in a verbal elaboration context. Children in the first condition (Sentence-1 condition) were given paired-associates embedded within a sentence containing one relation between the stimulus and response terms, and children in the second condition (Sentence-3 condition) were given pairs within sentences which established three relations between the stimulus and response. The third condition used an elaboration form in which a two-sentence paragraph (Paragraph-3 condition) was made up from the same three relations used to construct the Sentence-3 elaborations. Following training, recall of the 20 pairs was tested by an anticipation method. Orthogonal contrasts were used to compare (1) the performance of subjects in the Sentence-1 condition with the mean performance of subjects in the three relation conditions (Sentence-3 and Paragraph-3), and (2) the performance of subjects in the Sentence-3 and Paragraph-3 conditions.
Findings: The first planned comparison, used to measure the effects of increasing the number of relations in an elaborative context, was significant and indicated that fewer recall errors were made by subjects who had received elaborations containing three relations during training. The second comparison, used to test the effects of the structure, was not significant. Correlational analyses supported these findings. The findings suggest that within grammatically appropriate constructions, relational characteristics were more important than the specific structures studied in facilitating paired-associate performance.
Duration: April 1971-completed.
Cooperating group(s): Crocus Hill Nursery School, St. Paul, Minnesota; Bureau of Education for Handicapped, Office of Education, U. S. Department of Health, Education, and Welfare.
Publications: Turnure, J. E. and Thurlow, M. L. *Verbal elaboration phenomena in nursery school children*. Research Report No. 28. Minneapolis: Research, Development, and Demonstration Center in Education of Handicapped Children, University of Minnesota, 1971.

Personality

31-EA-1 LONGITUDINAL STUDY FROM PRESCHOOL TO PREADOLESCENCE

Investigator(s): Martin Kohn, Ph.D., Principal Investigator; and Barbara Parnes, Research Associate, Department of Research, William Alanson White Institute, 20 West 74th Street, New York, New York 10023.
Purpose: To determine (1) whether there is longitudinal persistence throughout preschool, from preschool to elementary school, and within elementary school of two major independent dimensions

of social-emotional functioning: interest-participation versus apathy-withdrawal, and cooperation-compliance versus anger-defiance; (2) the extent to which intellectual achievement in elementary school is a function of social-emotional functioning measured in preschool and concurrently with the academic measures; and (3) the extent to which social-emotional functioning and intellectual achievement are related to background and demographic variables and to the characteristics of the school the child attends.

Subjects: 1,232 children, a 20 percent random sample of children enrolled in New York public day care centers in 1967. When the study began in 1967, the children were ages 3 to 6, from lower class and lower-middle class families.

Methods: During preschool, all subjects are rated twice each year by their teachers on the Kohn Social Competence Scale and the Kohn Problem Checklist. Background and demographic data are obtained through parent interviews. After the children enter elementary school, they are rated yearly by their teachers on the Schaefer Classroom Behavior Inventory and the Peterson Problem Checklist, each of which measures dimensions of social-emotional functioning comparable to those assessed by the Kohn Preschool measures. Measures of intellectual achievement and overall school characteristics are obtained at yearly intervals from the New York City Board of Education and from the schools in the Archdiocese of New York and the Diocese of Brooklyn.

Duration: November 1967-continuing.

Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: A social competence scale and symptom checklist for the preschool child: Factor dimensions, their cross-instrument generality, and longitudinal persistence. *Developmental Psychology*, 1972, 6, 430-444; Relationship of preschool social-emotional functioning to later intellectual achievement. *Developmental Psychology*, 1972, 6, 445-452; A two-factor model of emotional disturbance in the young child: Validity and screening efficiency. *Journal of Child Psychiatry and Psychology*, 1972 (in press).

31-EA-2 CHILDHOOD PERSONALITY: SUCCESS AND INTEGRITY

Investigator(s): James E. Seegars, Jr., Ph.D., Chairman, Department of Psychology, Wofford College, Spartanburg, South Carolina 29301.

Purpose: To examine the relationship between personality structure and academic and personal success.

Subjects: Approximately 1,000 Negro and Caucasian boys and girls in grades 3 to 5.

Methods: Normative data will be gathered following Thomas, Chess, and Birch's findings, to determine the relationship between personality structure and academic and personal success. A large number of children will be followed up in a long-range study to determine *alerters* to subsequent pathology.

Findings: A pilot study of 250 children revealed that children's personal and academic success is significantly related to one of five personality categories: the easy child, the difficult child, the slow warmer, the loser, and the emotionally fragile child.

Duration: September 1971-June 1973.

31-EB-1 EVALUATING THE POTENTIAL OF FILM FOR IMPROVING SELF-IMAGE IN MINORITY GROUP CHILDREN

Investigator(s): Robert A. Weisgerber, Ed.D., Senior Research Scientist, American Institutes for Research, Box 1113, Palo Alto, California 94302.

Purpose: To explore the use of dramatic film coupled with class discussion and teacher training materials as a means of self-concept development for black, Mexican-American, and white students.

Subjects: 565 boys and girls, ages 11 to 13.
Methods: A controlled experiment will be conducted in which an existing motion picture will be analyzed. A new film will be produced which will incorporate an innovative strategy. A controlled experiment will then be conducted to determine the effects of the new film on different populations through the use of specially developed self-concept assessment instruments.
Findings: Black children were found more likely to exhibit independent thinking after viewing and discussing the film. White children exhibited higher confidence in their own leadership. White and Mexican-American children exhibited a lower sense of control over the future.
Duration: 1968-1971.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.
Publications: Weisgerber, R. A. and Danoff, M. N. *Evaluating the potential of films for improving self-image in minority group children*. Interim Technical Report: Phase I. December 31, 1969 (ERIC ED No. 044 026); Weisgerber, R. A. and Coles, G. J. *Evaluating the potential of films for improving self-image in minority group children*. Final Report. December 31, 1971 (ERIC ED No. 061 726). Order these publications by ERIC ED No. from EDRS, LEASCO Information Products, Inc., P.O. Box Drawer O, Bethesda, Maryland 20014. Each report is $0.65 on microfiche; $6.58 for a xerox reproduction copy.

31-EB-2 EXPLORATION OF THE GENERALITY OF SELF-IMAGE MATERIALS ACROSS ETHNIC GROUPS

Investigator(s): Robert A. Weisgerber, Ed.D., Senior Research Scientist, American Institutes for Research, Box 1113, Palo Alto, California 94302.
Purpose: To determine the effects on American Indian children of viewing particular film materials targeted at black student populations; and to compare their reactions to those of black, Mexican-American, and white children.
Subjects: Approximately 130 boys and girls, ages 11 to 13.
Methods: A controlled experiment was conducted on an Indian reservation. Existing instrumentation and film and discussion techniques were used. Data will be analyzed for the Indian population, and prior data collected on other ethnic groups will be reanalyzed.
Duration: April 1972-November 1972.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

31-EB-3 THE DEVELOPMENT OF AN AFFECTIVE ASSESSMENT DEVICE

Investigator(s): Reuben R. Rusch, Ph.D., Professor; and Nicholas Argyres, B.A., Graduate Assistant, Department of Educational Psychology, State University of New York at Albany, 232 Education Building, 1400 Washington Avenue, Albany, New York 12222.
Purpose: To develop a valid and reliable self-report form with which to assess the understanding of self and others in first grade children.
Subjects: 800 to 1,000 boys and girls in grade 1.
Methods: A factor analysis will be conducted of 51 items on each of two forms of the assessment device.
Duration: June 1972-December 1972.
Cooperating group(s): Public and parochial schools in the Capitol District area in New York State.

31-EB-4 CAN COMPENSATORY EDUCATION IMPROVE THE SELF-IMAGE OF CULTURALLY AND SOCIALLY DIFFERENT CHILDREN?

Investigator(s): Ethel M. Hepner, Ph.D., Research and Evaluation Coordinator, Lynwood Unified School District, 11331 Plaza, Lynwood, California 90262.
Purpose: To study the influence of compensatory education on the self-esteem of disadvantaged Black, Chicano, and Anglo pupils; and to determine if self-esteem improves with improved school achievement.
Subjects: 313 Black, Chicano, and Anglo children in grades 4, 5, and 6.
Methods: The children were administered the Coopersmith Self-Esteem Inventory (CSEI) and the Stanford Diagnostic Reading Test before and after participation in a compensatory program. Data were analyzed by chi-square analysis and cross-tabulations.
Findings: No changes in self-esteem were observed as a result of the program, although significant gains were made in reading. No differences in self-esteem were found among the three ethnic groups.Significant differences (.001) were noted on all parts of the CSEI favoring the boys over the girls.
Duration: September 1971-May 1972.

31-EC-1 THE STRUCTURE OF SENTIMENT RELATIONS IN CHILDREN'S GROUPS

Investigator(s): Maureen T. Hallinan, Ph.D., Assistant Professor, Department of Sociology, University of Wisconsin, Madison, Wisconsin 53706.
Purpose: To test the hypothesis of transitivity of sentiment, or liking, and its structural implications in children's groups.
Subjects: 51 classes of children in grades 6, 7, and 8, in 14 schools in urban, suburban, and rural areas. Fifteen classes at each grade level contained both boys and girls. One class in each of the grades contained only boys, and one class contained only girls.
Methods: The structure of sentiment relations, obtained from sociometric data gathered by a new technique, was compared to the deterministic structure of agraph-theoretic model by use of a statistical measure of association. The hypothesized model of structure was one of hierarchies of ranked clusters of cliques, and the statistical index measured deviation from a random sociogram in the direction of the deterministic model.
Findings: Strong support for the principle of transitivity of positive sentiment in children's groups was found, which implies that their sentiment choices are organized into hierarchies of ranked clusters of cliques.
Duration: June 1970-June 1972.
Cooperating group(s): National Science Foundation.

31-EC-2 CHILDREN AND WAR: POLITICAL SOCIALIZATION TO INTERNATIONAL CONFLICT

Investigator(s): Howard Tolley, Jr., Ph.D., Assistant Professor, Department of Psychology, Wilberforce University, Wilberforce, Ohio 45384.
Purpose: To determine children's knowledge of and attitudes towards war (specifically, Vietnam); to compare the relative influence of various socializing agents (family, school, and media); to examine sex, race, and social class differences; and to make a limited cross-generational comparison to a study conducted in 1942.
Subjects: 2,677 children, ages 8 to 14, who attend 14 public, private, and parochial schools (including two Quaker schools and two military academies) in New York, New Jersey, and Maryland. The children are approximately equally divided by sex; 15 percent are Black.

Methods: A written questionnaire was administered by teachers and the researcher. Two pretests were conducted with 200 respondents who were retested 30 days later to determine validity. Cross-tabulation and multiple regression analyses were used.
Findings: The children generally accepted the necessity of war. No more pacifist expression was found in this study than in a similar study conducted prior to World War II. Strong opposition to the Vietnam War and skepticism of President Nixon's creditability and policy were found. Media influenced knowledge more than attitudes. Marked racial and socioeconomic differences were found, while sex differences were minimal.
Duration: August 1970-completed.
Cooperating group(s): Columbia University.
Publications: Tolley, Howard, Jr. *Children and war: Political socialization to international conflict*. New York: Teachers College Press, Columbia University, 1972.

31-ED-1 ATTENTION AND COGNITIVE STYLE

Investigator(s): John C. Wright, Ph.D., Professor, Departments of Human Development and Psychology; and Director, Kansas Center for Research in Early Childhood Education, 130 Haworth Hall, University of Kansas, Lawrence, Kansas 66044.
Purpose: To develop an instrument for the assessment of reflection and impulsivity in young children, in order to study attentional processes in children's learning related to cognitive style.
Subjects: Normal and retarded boys and girls, ages 2-9 to 12-0 years.
Methods: A match-to-sample task (Kansas Reflection-Impulsivity Scale for Preschoolers) recorded eye movements of the normal children. The stimulus salients experimentally manipulated included complexity, color, form, distinctiveness, and locus of critical features.
Findings: The test was found to be reliable, stable, and valid. Younger children's attention is more stimulus governed, while older children's attention is more oriented toward relevance to task.
Duration: 1968-1975.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare; Central Midwestern Regional Educational Laboratories.
Publications: Reflection-impulsivity and associated observing behaviors in preschool children. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Minneapolis, Minnesota, April 1971. This paper is available from the investigator.

31-ED-2 THE MAKE-BELIEVE PLAY OF CHILDREN: A STUDY OF SPONTANEOUS IMAGINATIVE GAMES AND FANTASY PREDISPOSITION

Investigator(s): Jerome L. Singer, Ph.D., Professor, Department of Psychology, City University of New York. Graduate Center, 33 West 42nd Street, New York, New York 10036; and Dorothy G. Singer, Ed.D., Associate Professor, Department of Psychology, Manhattanville College, New York, New York 10577.
Purpose: To study the spontaneous imaginative games and fantasy predisposition of children.
Subjects: Nursery school children, kindergartners, and children through age 9.
Methods: A series of studies are part of the overall program. Some studies involve formal experiments; others are based on recording and rating samples of spontaneous play of children by independent, trained observers, as well as on interviews with children and parents on play behavior. The play will be systematically scored on the basis of imaginativeness and associated affects (e.g., joy, anger, sadness, overt aggression).
Findings: Make-believe play can be reliably rated. While younger children's fantasy play is strongly situationally determined as early as ages 5 to 6, predisposition to such play can be

estimated by measures developed in these studies. Imaginative play is associated with positive affect and concentration ability and can be enhanced by training and adult modeling.
Duration: 1967-continuing.
Publications: Pulaski, M. A. Toys and imaginative play. In J. L. Singer (Ed.), *The child's world of make-believe: Experimental studies of imaginative play*. New York: Academic Press, 1972.

31-EF-1 CORTISOL EXCRETION RATES AND INFANTILE ANXIETY

Investigator(s): Katherine Tennes, M.A., Instructor, Medical Center, University of Colorado, 4200 East Ninth Avenue, Denver, Colorado 80220.
Purpose: To investigate the relationship between urinary cortisol excretion levels and infantile anxiety.
Subjects: 40 normal infants followed from ages 6 to 18 months.
Methods: Twenty-four-hour urinary cortisol excretion levels will be determined at 3-month intervals on 2 days at each interval: (1) a nonstress day, and (2) a stress day that involves separation of infant and mother. (The infant will be left in the care of the experimenter.) Normative data will be established on cortisol excretion levels for this age period. An investigation will be made of cortisol response to developmental aspects (onset, peak, and decline) of infantile anxiety.
Duration: April 1972-January 1974.
Cooperating group(s): Pediatric Microchemistry Laboratory and Department of Biophysics and Human Genetics, University of Colorado.

31-EG-1 PERSONALITY AND PERCEPTUAL VARIABLES AND PERSONAL SPACE SCHEMATA

Investigator(s): Carol J. Guardo, Ph.D., Associate Professor, Department of Psychology, University of Denver, Denver, Colorado 80210.
Purpose: To examine hypotheses which relate personality characteristics and perceptual processes to personal space patterning by children.
Subjects: Approximately 160 children: 20 boys and 20 girls in each of grades 4 through 7.
Methods: Three separate studies are being conducted. In the first study, the Children's Personality Questionnaire will be administered in group sessions to 30 boys and 30 girls in grade 6. A personal space task developed by the investigator will be administered. As extensive individual differences have been found in children's personal space schemata, it is expected that personality patterns will be related to these schemata. The second study will examine the relationship between field dependence/independence and personal space patterning. Twenty boys and 20 girls in grades 4 and 7 will be administered the Group Embedded Figures Test and a personal space task. The third study will examine the use of personal space patterning when children are interacting with their parents. Twenty boys and 20 girls in grade 5 will respond to the Schaefer Child's Report of Parental Behavior Inventory and to personal space task involving parental stimuli.
Duration: September 1972-June 1973.
Cooperating group(s): Graduate School of Arts and Sciences, University of Denver; Englewood Public Schools, Colorado.
Publications: Guardo, C. J. Personal space in children. *Child Development*, 1969, 40, 143-151; Meisels, M. and Guardo, C. J. Development of personal space schemata. *Child Development*, 1969, 40, 1167-1178; Guardo, C. J. and Meisels, M. Child-parent spatial patterns under praise

and reproof. *Developmental Psychology*, 1971, 5, 365; Guardo, C. J. and Meisels, M. Factor structure of children's personal space schemata. *Child Development*, 1971, 42, 1307-1312.

Social

31-FA-1 PEERS' PERCEPTIONS OF EMOTIONAL DISTURBANCE

Investigator(s): David W. Novak, Ph.D., Assistant Professor, Department of Psychiatry, Medical Center, Duke University, Box 2906, Durham, North Carolina 27710.
Purpose: To determine children's reactions to behavior that professionals would label as indicative of emotional disturbance, and to determine the effect of labeling a given behavior as emotionally disturbed.
Subjects: 600 boys and girls in grades 4 through 6, from predominantly white, lower middle to upper middle class groups.
Methods: In the classroom, children were presented with one of six descriptions of imaginary peers (one described a normal peer, and five described peers with varying degrees and types of disturbance). The children were then asked to evaluate the imaginary peer in the description on each of three measures: attractiveness (bipolar adjectives), social distance, and perceived similarity. Half of the children were told the person described was disturbed. The other half of the children received no information.
Findings: Behaviors which were directed at others were more negatively sanctioned than bizarre behavior that did not involve others. A slight effect was found for the labeled versus nonlabeled child. The opposite sex peer was more negatively rated for the same behavior compared to the same sex peer for all descriptions except the normal one.
Duration: August 1971-June 1973.
Cooperating group(s): North Carolina Department of Mental Health; Durham County Schools, North Carolina.

31-FA-2 EPIDEMIOLOGY OF EXCEPTIONALITY IN SCHOOL CHILDREN: PLURALISTIC ASSESSMENT

Investigator(s): Jane R. Mercer, Ph.D., Professor, Department of Sociology, University of California at Riverside, Riverside, California 92502.
Purpose: To investigate how the clinical characteristics (IQ, adaptive behavior, and physical disabilities) and the modality of the sociocultural background of Negro, Mexican-American, and Anglo children are related to the epidemiology of exceptionality (behavior perceived as sufficiently deviant to evoke referral and testing by a school psychologist); and to develop and standardize evaluative measures to compare a child's performance not only with the performance of the general population, but also with the performance of children from his own sociocultural background.
Subjects: 700 black, 700 Anglo, and 700 Mexican-American boys and girls, ages 5 to 11, who attend public schools in California.
Methods: The Adaptive Behavior Inventory for Children will be developed to measure adaptive social role behavior in the home and neighborhood, and nonacademic roles at school, in the

neighborhood, and in the community. The Socioculture Modality Index will be developed to measure the child's socialization milieu. A health history and impairment inventory will also be developed. Wechsler Intelligence Scale for Children scores will be obtained for the three groups of children. A parent or parent substitute of each child will be interviewed using the instruments developed. The data will be analyzed, the measures standardized, and pluralistic assessment procedures developed.

Duration: June 1971-August 1974.

Cooperating group(s): Center for Epidemiologic Studies, National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: Newsletters, reporting results to-date, are available from Pluralistic Assessment Project, 3393 University Avenue, Riverside, California 92501.

31-FA-3 MATERNAL-INFANT SOCIAL INTERACTION: RELATION TO PEER SOCIAL BEHAVIOR

Investigator(s): Nathan W. Gottfried, Ph.D., Associate Professor; and Bill Seay, Ph.D., Associate Professor, Department of Psychology, Louisiana State University, Baton Rouge, Louisiana 70803.

Purpose: To investigate the relationship between mother-infant behavior and peer social behavior through the observation of positional, vocal, and visual behaviors.

Subjects: 100 boys and girls, ages 6 weeks to 2 years, whose mothers participate in a well baby clinic of a family planning agency. The children are from poor families, and approximately 80 percent of the children are black.

Methods: An observational category system will be used which is modified from maternal-infant observation systems by Harlow. For this study, a peer social observational system devised by the investigators will also be used.

Findings: Results indicate that visual orientation of infants gradually shifts from mother to peer-partner starting at approximately 6 months of age. Visual orientation seems to be a precursor for directed behavior.

Duration: 1971-1975.

Cooperating group(s): Well Baby Clinic, Family Planning, Inc.; Department of Pediatrics, Earl K. Long Memorial Hospital.

Publications: Gottfried, N. W. and Seay, B. An observational technique for preschool children. *Journal of Genetic Psychology (in press).*

31-FA-4 THE GROWTH OF SOCIAL SPEECH

Investigator(s): Catherine J. Garvey, Ph.D., Research Associate, Department of Psychology, Johns Hopkins University, Baltimore, Maryland 21218.

Purpose: To study the speech of young children in a potential social situation in order to determine the incidence of social speech (as opposed to private speech), and to describe the social speech.

Subjects: 18 nursery school children, ages 3 1/2 to 5, 11 girls and 7 boys, from professional families.

Methods: Three dyads were formed from triads of same age children. Each dyad spent 15 to 20 minutes in a playroom where their activities were videotaped. Judges indicated the periods of mutual engagement or nonengagement of the children, utterances were coded as receiving or not receiving a response, and sequences of chained utterances were identified.

Findings: The children spent the majority of time in states of mutual engagement. A majority of utterances received responses from the partner. All dyads produced chained sequences of utterances, some producing chains exceeding 12 utterances in length.
Duration: February 1972-January 1973.
Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-FA-5 PERCEIVED REACTION TO FRUSTRATION AMONG ADOLESCENTS

Investigator(s): James O. Palmer, Ph.D., Associate Clinical Professor, Department of Psychiatry, University of California at Los Angeles, 760 Westwood Plaza, Los Angeles, California 90024.
Purpose: To develop a technique for measuring reactions to social frustrations as perceived by adolescents, and to study the variables associated with such patterns of reaction.
Subjects: Approximately 360 boys and girls, ages 12 to 18, in public schools, at various levels of academic achievement, and from various socioeconomic backgrounds.
Methods: A multiple choice instrument was derived from a pilot study and was standardized in public schools. Age and social status variables were studied. A special sample of delinquent and psychotic children was administered the test and their scores were compared with scores of normal children. A factor analysis was made of the normal children's reactions.
Findings: Psychotic adolescents are helpless in the face of social frustrations. Delinquents know the approved social responses and are more likely to verbalize them than normal children.
Duration: 1961-continuing.

31-FA-6 COOPERATION AND COMPETITION AMONG BLACKFOOT INDIAN AND URBAN CANADIAN CHILDREN

Investigator(s): A. G. Miller, Ph.D., Assistant Professor, Department of Psychology, University of Lethbridge, Lethbridge, Alberta, Canada.
Purpose: To examine cooperation and competition differences among Blackfoot Indian and urban Canadian children as a function of culture.
Subjects: Approximately 100 Blackfoot Indian and urban Canadian boys and girls, ages 8 to 10.
Methods: In teams of four, the children are invited to play a game in which they can adapt either cooperative or competitive stances. Their behaviors are compared cross-culturally. Analysis of variance designs were used with culture, sex, and trials as the major variables.
Findings: The Blackfoot Indian children were found to show much more cooperation than the urban children.
Duration: 1971-continuing.
Publications: Miller, A. G. and Thomas, R. Cooperation and competition among Blackfoot Indian and urban Canadian children. *Child Development (in press).*

31-FA-7 FUNCTIONAL ANALYSIS OF SOCIAL BEHAVIORS OF PRESCHOOL CHILDREN

Investigator(s): Ronald Wiegerink, Ph.D., Associate Professor; and Phillip Strain, M.A., Research Associate, Department of Special Education, George Peabody College for Teachers, Nashville, Tennessee 37203.

Purpose: To determine the relative effects of setting and teacher attention variables on the social play of children.
Subjects: 10 to 15 children, ages 3 and 4, who were referred to an intervention program because of their behavior disorders.
Methods: Trained observers collect data daily. A multiple baseline design is employed comparing a variety of intervention strategies.
Findings: Results indicate that social behavior can be significantly affected by arranging classroom activities that model interactive play.
Duration: June 1972-December 1972.

31-FA-8 THE EFFECTS OF REINFORCING ACADEMIC PERFORMANCE ON SOCIAL BEHAVIOR: A BRIEF REPORT

Investigator(s): Richard A. Winett, Ph.D., Assistant Professor, Department of Psychology, University of Kentucky, Lexington, Kentucky 40506.
Purpose: To determine if the simple reinforcement of academic behavior will significantly change social behavior.
Subjects: Black boys, ages 10 to 13, who attend special education classes.
Methods: Data will be collected on the boys' academic work, and observations will be made of their social behavior.
Findings: The reinforcement of academic work was found to result in large increases in academic work and dramatic changes in the boys' social behavior without regimentation.
Duration: October 1971-February 1972.
Cooperating group(s): Kentucky Research Foundation; Fayette County Schools, Kentucky.

31-FA-9 STUDIES IN THE DEVELOPMENT OF PSYCHOSOCIAL MATURITY

Investigator(s): Ellen Greenberger, Ph.D., Senior Research Scientist, Center for the Study of Social Organization of Schools, Johns Hopkins University, 3505 North Charles Street, Baltimore, Maryland 21218.
Purpose: To explore the feasibility of contructing a scale that measures psychosocial maturity.
Subjects: Random samples of approximately 3,000 fifth graders, 3,000 eleventh graders, and 1,500 Black students at each grade level in Pennsylvania schools.
Methods: A 54-item scale was constructed to measure social maturity. The scale consisted of five factors including self-esteem, openness to change, independence, identity, and social tolerance.
Findings: Girls, whites, and children from higher socioeconomic backgrounds obtained higher maturity scores than boys, Blacks, and children from lower social classes. Differences in psychosocial maturity because of sex increase from grade 5 to grade 11, while differences because of race and social class narrow over these years. Psychosocial maturity accounts for about 16 percent of the variance in academic achievement at grade 5, but for only 6 percent of the variance at grade 11.
Duration: 1970-continuing.
Cooperating group(s): Pennsylvania Department of Education.
Publications: Greenberger, E. and Sorensen, Aa. B. *Toward a concept of psychosocial maturity. Report No. 108.* Baltimore: Center for the Study of Social Organization of Schools, Johns Hopkins University, 1971; Greenberger, E.; Campbell, P.; Sorensen, Aa. B.; and O'Connor, J. *Toward the measurement of psychosocial maturity. Report No. 110.* Baltimore: Center for

the Study of Social Organization of Schools, Johns Hopkins University, 1971; Starr, B. J.; Greenberger, E.; Seidler, A. J.; Marini, M. M.; Sorensen, Aa. B.; Campbell, P.; and O'Connor, J. *Black-white differences in psychosocial maturity. Report No. 127.* Baltimore: Center for the Study of Social Organization of Schools, Johns Hopkins University, 1972; Greenberger, E. *Psychosocial maturity or social desirability? Report No. 131.* Baltimore: Center for the Study of Social Organization of Schools, Johns Hopkins University, 1972; Greenberger, E. and Marini, M. M. *Black-white differences in psychosocial maturity: A further analysis. Report No. 136.* Baltimore: Center for the Study of Social Organization of Schools, Johns Hopkins University, 1972.

31-FA-10 EFFECTIVENESS OF SOCIAL REINFORCEMENT AS A FUNCTION OF CHILDREN'S FAMILIARITY WITH THE EXPERIMENTER

Investigator(s): Paul A. Roodin, Ph.D., Assistant Professor; and William E. Simpson, Ph.D., Associate Professor, Department of Psychology, State University of New York College at Oswego, Oswego, New York 13126.

Purpose: To examine the effectiveness of social reinforcement as a function of children's familiarity with the adult dispensing the reinforcers.

Subjects: 36 first graders (18 boys and 18 girls) and 32 fifth graders (22 boys and 10 girls) from the Oswego Campus School. The children are from middle class backgrounds and have average intelligence.

Methods: A marble dropping game was presented to the children on two successive days. On the second day, half of the children at each age level were tested by the same experimenter (familiar condition), and half of the children were tested by a different experimenter (stranger condition). Two response measures were obtained. The baseline rate of responding was obtained separately during the first minute of the first day. Seven different scores were then obtained and subjected to a repeated measures analysis of variance.

Findings: First graders were more responsive to social reinforcement provided by a familiar adult than to social reinforcement provided by a stranger. Fifth graders tended to be equally responsive to social reinforcement from either a familiar adult or a stranger. No conclusive support was obtained for either the valence or arousal hypothesis of social reinforcement.

Duration: January 1972-December 1972.

Cooperating group(s): Oswego Campus School.

31-FA-11 INTERGENERATIONAL RELATIONS IN A SOUTHERN TOWN

Investigator(s): John Honigmann, Ph.D., Chairman; and Valerie Fennell, B.A., Graduate Student, Department of Anthropology, University of North Carolina, Chapel Hill, North Carolina 27514.

Purpose: To study people's behavior as it is influenced by their ages through the use of anthropological research techniques.

Subjects: Approximately 2,034 people, all ages, Negroes and Caucasians, males and females, who constitute the entire population of a small southern town.

Methods: Data will be collected through participant-observation and interviews. Research instruments have not yet been devised. Data will be analyzed by frequency distributions and some observance of sampling rules based on the unique features of the town.

Duration: October 1972-October 1973.

Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare; Center for Studies of Metropolitan Problems.

31-FB-1 FEMININE DEVELOPMENT IN ADOLESCENCE

Investigator(s): James O. Palmer, Ph.D., Associate Clinical Professor, Department of Psychiatry, University of California at Los Angeles, 760 Westwood Plaza, Los Angeles, California 90024.
Purpose: To study a wide number of variables in the development of different feminine identities during adolescence--particularly the mother-daughter relationship.
Subjects: Normal and emotionally disturbed adolescents in intact families.
Methods: A multiple choice questionnaire is currently being developed to deal with attitudes towards passivity/aggression, dependency/independence, democratic/authoritarian, introversion/extroversion, and sexuality/asexuality. Based on a pilot study, the program will include an intensive interview schedule, collection of biographical data, a sentence completion test, and an observational study.
Duration: 1970-continuing.

31-FB-2 EMERGENCE OF SEXUAL IDENTITY AND SYMBOLIZATION

Investigator(s): Eleanor Galenson, M.D., Associate Professor and Co-director; and Herman Roiphe, M.D., Assistant Professor, Co-director, Research Nursery, Albert Einstein College of Medicine, Yeshiva University, New York, New York 10003.
Purpose: To establish the normal pattern of the development of sexual identity during the second year of life, and to study the emergence of symbolization in play and speech.
Subjects: 10 normal babies, studied from ages 12 to 20 months, equally divided by sex; and their mothers.
Methods: During the baby's second year of life, he and his mother attend nursery school four mornings each week for a 10-month period. The babies' behavior is recorded by a team of three observers for each child according to preestablished categories. Data were analyzed for emergence of regular patterns and clusters of behavior related to sexual identity and symbolization.
Findings: Results indicate that there is a regularly occurring sequence of behavior related to anal, urinary, and genital body image development. This sequence is reflected in symbolic functions (i.e., play, speech) as well as in other behavior.
Duration: 1967-1977.

31-FB-3 ATYPICAL SEX ROLE DEVELOPMENT IN CHILDREN

Investigator(s): Richard Green, M.D., Associate Professor, Department of Psychiatry, School of Medicine, University of California at Los Angeles, Los Angeles, California 90024.
Purpose: To study the development of masculinity and femininity in children.
Subjects: 40 boys, ages 4 to 11, who prefer the clothes, toys activities, and companionship of girls.
Methods: The children are matched with typical boys and girls. Their families are studied by interview, testing, and observation.

Findings: Results indicate that atypical sex role development begins during the first year of life and many routes appear to lead toward this development. These boys behave very similarly to girls.
Duration: July 1970-June 1973.
Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-FC-1 RETROFLEXIVE REFORMATION OF ADOLESCENT DRUG ABUSERS

Investigator(s): David F. Duncan, M.A., President, Alternatives for Troubled Youth; and James Allen, M.S., Project Director, Who Cares, Inc., 2301 Lou Ellen, Houston, Texas 77018.
Purpose: To test an application of Cressey's theory of retroflexive reformation to the rehabilitation of adolescent drug abusers.
Subjects: Adolescent drug abusers who come to the Who Cares, Inc. Crisis Center for short-term treatment.
Methods: Selected drug abusers will be involved as volunteers in the crisis intervention or drug education programs of the center. Success rates, clinical impressions, and objective psychological tests (primarily of the semantic differential type) will be used to assess the effectiveness of the approach.
Duration: January 1972-December 1972.
Cooperating group(s): Texas Research Institute of Mental Sciences.

31-FC-2 A STUDY OF SMOKING AND RESPIRATORY SYMPTOMS IN KENT SCHOOL CHILDREN AND FACTORS ASSOCIATED WITH SMOKING BEHAVIOR

Investigator(s): Beulah R. Bewley, M.B., M.Sc., Lecturer; W. W. Holland, Professor; and A. Elliott, County Medical Officer, Department of Clinical Epidemiology and Social Medicine, St. Thomas' Hospital Medical School, 60 Sancroft Street, London SE11 5NG, England.
Purpose: To investigate smoking and respiratory symptoms and factors associated with smoking behavior in children.
Subjects: 4,804 children, ages 10 to 13, who attend schools in Kent, England.
Methods: Stage I: In November 1971, all subjects completed a self-administered questionnaire on their respiratory symptoms and smoking behavior. Stage II: A random sample of 150 smokers was taken from the population. This was matched for school class, age, and sex with an experimental and nonsmoker group. In May 1972, 491/300 children completed a second more detailed questionnaire. A postal questionnaire was sent to the parents of these children concerning their smoking behavior, family size, child's respiratory illnesses, parents' occupations, and attitudes towards children smoking.
Findings: 7.3 percent of boys and 2.3 percent of girls have reported that they are smoking regularly (i.e., at least one cigarette a week). Morning cough, cough during the day or night and a cough lasting 3 months or more were all reported more frequently by smokers than nonsmokers.
Duration: September 1971-June 1973.
Cooperating group(s): Department of Epidemiology and Social Medicine, St. Thomas' Hospital; Kent Public Health Department.

31-FE-1 STUDIES IN ADOLESCENT SELF-DISCLOSURE

Investigator(s): Lloyd W. West, Ph.D., Associate Professor, Department of Educational Psychology, University of Calgary, Calgary, Alberta, Canada T2N 1N4.
Purpose: To survey the communication patterns of adolescents and to determine the correlates of such patterns.
Subjects: Several samples of 80 to 291 boys and girls, ages 12 to 19.
Methods: The subjects will be given the Self-Disclosure Inventory for Adolescents. Exploratory and correlational methods will be used.
Findings: The preferred confidants of adolescents include mothers, friends of the same sex, fathers, friends of the opposite sex, and professionals. Sex differences were found in the patterns of disclosure.
Cooperating group(s): Human Resources Research Council, Canada.
Publications: West, L. W. *et al.* A self-disclosure inventory for adolescents. *Psychological Reports*, 1969, 24, 432-445; West, L. W. A study of the validity of the SDIA. *Perceptual and Motor Skills*, 1971, 33, 91-100; West, L. W. Some implications of self-disclosure studies for group counselling with adolescents. *Canadian Counsellor*, 1970, 4, 57-62.

31-FE-2 CARRASCOLENDAS: EFFECTS OF A SPANISH/ENGLISH TELEVISION SERIES FOR PRIMARY SCHOOL CHILDREN

Investigator(s): Frederick Williams, Ph.D., Director; Geraldine Van Wart, B.A., Project Director; and Susan McRae, B.A., Project Assistant Director, Center for Communication Research, University of Texas, 214 Speech Building, Austin, Texas 78751.
Purpose: To measure the learning effects of and attitudes towards a bilingual television series in Spanish and English for Mexican-American children.
Subjects: Field Research Phase: 44 grade 1 pupils in a bilingual instructional program in Austin, Texas. Attitude Survey: 250 teachers, 220 principals, 100 parents, and 84 children.
Methods: Two experimental groups viewed the television series; a third control group did not view the series. One experimental group watched the 30 programs only. The other experimental group viewed the 30 programs and also engaged in previewing and follow-up activities in Spanish and English which related to the content of each day's program. Pre- and posttests with separate Spanish and English instruments were used to measure the learning effects of the series. Mail surveys were used to collect data on teachers' and principals' attitudes towards the television series, and interviews were conducted with parents and children.
Findings: Results indicated significant gains on the English test scores for the viewers, with greater gains for those who had supplementary activities. Subscores in individual content areas showed significant learning effects as measured by the Spanish test in the areas of self-concept and language skills; and in history/culture, science, and language skills as measured by the English test. There were also gains in mathematics when scored in degree of correctness in test responses. Language fluency was increased in Spanish and was increased to a greater extent in English. Surveys indicated positive responses to the series and suggested revisions for specific programs.
Duration: August 1971-June 1972.
Cooperating group(s): Bilingual Office, Office of Education, U. S. Department of Health, Education, and Welfare; Education Service Center, Region XIII, Austin, Texas; KLRN-TV.
Publications: Summaries of the report are available from the investigators.

SPECIAL GROUPS OF CHILDREN

Physically Handicapped

31-GA-1 ANNUAL SURVEY OF HEARING IMPAIRED CHILDREN AND YOUTHS

Investigator(s): Augustine Gentile, Director; Peter Ries, M.A., Acting Deputy Director; and Sal DiFrancesca, Ph.D., Research Psychologist, Office of Demographic Studies, Gallaudet College, Kendall Green, Washington, D. C. 20002.
Purpose: To collect, process, and disseminate useful information on hearing impaired youth, for the purpose of improving and expanding educational opportunities for the hearing impaired.
Subjects: Over 40,000 students, ages 0 through college age, enrolled in special education programs for the hearing impaired during the 1970-1971 school year.
Methods: All known special education programs for the hearing impaired were surveyed and asked to submit demographic data on their students, including age, sex, audiometric findings, history of hearing loss, additional handicapping conditions, achievement test scores, and type of educational services being received. Over 19,000 Stanford Achievement Tests have been administered to hearing impaired students, and the results are being analyzed.
Duration: May 1968-continuing.
Cooperating group(s): Division of Research, Bureau of Education for Handicapped, Office of Education, U. S. Department of Health, Education, and Welfare.

31-GB-1 AUDITORY PATTERNING BY YOUNG HEARING IMPAIRED CHILDREN

Investigator(s): Robin B. Prescott, Ph.D., Assistant Professor, School of Medicine, Temple University, Philadelphia, Pennsylvania 19133.
Purpose: To determine correlations of children's age, sex, auditory sensitivity, and linguistic ability to the successful identification of complex acoustic signals; and to investigate correlations of acoustic characteristics of the signals of specific errors in signal recognition.
Subjects: 50 boys and girls, ages 3 to 6, with moderate to profound hearing impairments; and a control group of 20 normally hearing boys and girls, ages 3 to 4.
Methods: A set of 64 acoustic signals representing frequently occurring events were arranged in 40 programs of gradually increasing difficulty. Response displays were presented by a digital device which responded to random order presentation of stimuli. An observer recorded responses and response latency times. Multivariate correlations were made of (1) subject characteristics to trials to criterion, and (2) specific errors to physical characteristics of the stimuli.
Findings: Success at the experimental task varied in relation to auditory sensitivity and practice. Failure was not fully predicted by any single variable. Error matrices, response latency times, and stimulus generalization suggested that success was related to a rule testing strategy.
Duration: May 1970-June 1973.
Cooperating group(s): St. Christopher's Hospital for Children, Philadelphia, Pennsylvania; Bucks County, Pennsylvania Department of Special Education; Gallaudet College Preschool, Washington, D. C.; Speech and Hearing Center, University of New Mexico.
Publications: *Volta Review*, 1971, 73, 51-53.

31-GC-1 SHORT-TERM MEMORY IN DEAF ADOLESCENTS

Investigator(s): John M. Belmont, Ph.D., Associate Professor, Kansas Center for Mental Retardation, Medical Center, University of Kansas, 39th Street and Rainbow Boulevard, Kansas City, Kansas 66103.
Purpose: To determine whether normal vocal-articulatory memory strategies can be translated into dactylic-articulatory strategies for use by deaf children.
Subjects: 12 congenitally profoundly deaf boys and girls, ages 15 to 18, equally divided by sex.
Methods: The subjects were told to rehearse strings of letters by grouping the letters. Different rehearsal strategies were combined to demonstrate that normal memory strategies are useful for deaf people. An automated position probe short-term memory apparatus was used to record recall accuracy and recall response times.
Findings: Using normal strategies, deaf adolescents appear to perform the short-term memory task identically to normal children of the same age. Articulation, rather than vocalization, seems to be sufficient for short-term memory.
Duration: Spring 1972-spring 1973.
Cooperating group(s): National Institute of Child Health and Human Development, National Institutes of Health, Public Health Service, U.S. Department of Health, Education and Welfare.

31-GC-2 DIFFERENTIAL SENSITIVITY TO DURATION IN HEARING IMPAIRED CHILDREN

Investigator(s): Hilda Greenbaum, Ph.D., Research Associate, Clarke School for the Deaf, Round Hill Road, Northampton, Massachusetts 01060.
Purpose: To measure and compare discrimination of short-term intervals through the senses of vision, touch, and defective hearing.
Subjects: Six hearing adults; six hearing impaired children, ages 13 to 17; and a control group of six hearing children, matched for age and sex.
Methods: Two-alternative, forced choice measures will be employed using constant stimuli. The time intervals will be carried to obtain threshold data. The intervals will be examined as a function of time, sensation level, sense modality, and interpulse interval. Initial data will be collected on adults and then on the sample of hearing impaired students with matched hearing controls.
Duration: September 1972-July 1973.

31-GC-3 ACADEMIC AND SOCIAL DEVELOPMENT IN YOUNG HEARING IMPAIRED CHILDREN

Investigator(s): Michael Rodda, Ph.D., Associate Professor, Department of Special Education, University of Cincinnati, Cincinnati, Ohio 45221.
Purpose: To investigate the academic and social development of young hearing impaired children.
Subjects: 120 hearing impaired children, ages 5 to 12, who attend public and private schools in southern Ohio.
Methods: The children's academic and social development will be measured by a battery of standardized tests. Their performances will be compared on the basis of sex, grade, hearing loss, and preschool experience. Data will be analyzed by analysis of variance.
Duration: October 1971-October 1973.

31-GD-1 AN INVESTIGATION OF THE EFFECT AND ETIOLOGY OF CHROMOSOME ABNORMALITIES DETECTED IN THE NEWBORN AND PRENATAL POPULATIONS

Investigator(s): John L. Hamerton, D.Sc., Director, Department of Genetics, The Children's Hospital, 685 Bannatyne Avenue, Winnipeg, Manitoba R3E OW1, Canada.
Purpose: To detect all newborn children who have chromosome abnormalities, and to conduct follow-up studies where appropriate.
Subjects: 4,000 to 5,000 newborn boys and girls each year.
Methods: Standard cytogenetic techniques will be employed; two cells will be analyzed. Control children will be selected on the basis of sex and time of birth.
Findings: Of 8,046 children born over a 2-year period, 26 showed major chromosome abnormalities, and 120 showed marker chromosomes.
Duration: 1970-1975.
Cooperating group(s): Department of Obstetrics and Gynecology, University of Manitoba; Department of National Health and Welfare, Canada.
Publications: Hamerton, J. L.; Ray, M.; Abbott, J.; Williamson, C.; and Ducasse, G. C. Chromosome studies in a neonatal population. *The Canadian Medical Association Journal* (in press).

31-GD-2 LONGITUDINAL STUDY OF NEWBORNS WITH SEX CHROMOSOMAL ANOMALIES

Investigator(s): Arthur Robinson, M.D., Professor and Chairman, Department of Biophysics and Genetics, Medical School, University of Colorado, 4200 East Ninth Avenue, Denver, Colorado 80220.
Purpose: To conduct a longitudinal study of newborn infants who have sex chromosomal anomalies.
Subjects: Approximately 40 children, ages 0 to 8.
Methods: Consecutive newborns are screened at two large hospitals for abnormalities of the x and y chromosomes by checking the sex chromatin constitution of cells obtained from the placenta. Babies who display a discrepancy are karyotyped. Newborns thus identified as having abnormalities of sex chromosomes are followed with repeated behavioral, psychological, developmental, physical, and electroencephalographic exams. Home stimulation and parent-child interaction will be evaluated by social workers. Control studies are conducted on siblings. When deviations from normal development are found, therapeutic intervention is offered. During the first year of life, studies are frequent (often monthly), but are later reduced to semiannual and annual observations.
Duration: 1964-continuing.
Publications: Robinson, A.; Goad, W. B.; Puck, T. T.; and Harris, J. Studies on chromosomal nondisjunction in man. III. *American Journal of Human Genetics*, 1969, 21, 466; Eller, E.; Frankenburg, M. P.; Puck, M.; and Robinson, A. Prognosis in newborns with x-chromosomal abnormalities. *Pediatrics*, 1971, 47, 681; Greensher, A.; Gersh, R.; Peakman, D.; and Robinson, A. Screening of newborn infants for abnormalities of the y chromosome. *Journal of Pediatrics*, 1971, 79, 305; Nakashima, I. and Robinson, A. Fertility in a 45, x female. *Pediatrics*, 1971, 47, 770; Harris, J. and Robinson, A. X-chromosome abnormalities and the obstetrician. The value of routine nuclear sexing of newborns. *American Journal of Obstetrics and Gynecology, 1971, 109, 574-583.*

31-GE-1 EVALUATION OF DRUGS USED IN THE TREATMENT OF ABSENCE SEIZURES

Investigator(s): F. E. Dreifuss, M.B., M.R.C.P., Professor, Department of Neurology, School of Medicine, Box 147, University of Virginia Hospital, Charlottesville, Virginia 22901.
Purpose: To evaluate and compare two drugs, clonazepam and ethosuximide, used in the treatment of absence seizures.
Subjects: Children, ages 5 to 16, with absence (petit mal) seizures.
Methods: The drugs will be evaluated on a double blind comparative basis. The subjects will be divided into two groups: (1) those whose seizures are refractory to ethosuximide, and (2) those who are untreated. The children are admitted to a clinical research unit for baseline studies, including 24-hour telemetered EEG, psychological tests including the Reitan Battery, and a complete neurological evaluation. Two drugs are administered, one of which is active and statistically controlled by the Section of Epilepsy, National Institute of Neurological Diseases and Stroke. The children will be reevaluated after 4, 9, and 17 weeks.
Duration: June 1971-September 1973.
Cooperating group(s): Medical College of Wisconsin, Milwaukee; Section of Epilepsy, National Institute of Neurological Diseases and Stroke, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.
Publications: Patterns of abnormal discharge in 12-hour telemetered EEG of untreated children with absence seizures. *Epilepsia*, 1971, 12, 278; Effects of Spike-Wave on continuous visual-motor performance. *Epilepsia*, 1970, 11, 241.

Mentally Retarded

31-HA-1 AN EXPERIMENT IN THE PREVENTION OF CULTURAL-FAMILIAL MENTAL RETARDATION

Investigator(s): Rick Heber, Ph.D., Director; and Howard Garber, Ph.D., Research Associate, Department of Studies in Behavioral Disabilities, Research and Training Center in Mental Retardation, University of Wisconsin, Madison, Wisconsin 53703.
Purpose: To determine the effectiveness of an intervention program designed to displace all negative factors in the environment of infants of disadvantaged retarded mothers.
Subjects: 40 mentally retarded mothers with IQs less than 70, who reside in a slum of Milwaukee, Wisconsin, and their newborn infants.
Methods: A series of surveys was conducted in the target population over the past few years. In the first survey, all slum families with a newborn infant and at least one other child, age 6, were studied. The major finding revealed that the variable of maternal intelligence proved to be the best single predictor of the level and character of intellectual development in the offspring. The results also indicated that the mean measured intelligence of children of mothers with IQs over 80 is relatively constant; however, if the mothers' IQs are below 80, children show a progressive decline in mean intelligence as age increases. In a second survey, 519 consecutive newborns in the study, fathers, mothers, and all children over age 2 were administered the Peabody Picture Vocabulary Test of Intelligence. Results revealed a rather striking congruence of maternal and paternal IQ. Of mothers below IQ 70, 65 percent had husbands who also scored below 70; and only 14 percent had husbands who scored above 100. These surveys indicate that the very high prevalence of mental retardation associated with the slums is not

randomly distributed but, rather, is strikingly concentrated within individual families identified on the basis of maternal intelligence. The present sample was selected on the basis of these surveys and the study continued to investigate the social environment provided by mentally retarded slum mothers. An intervention program was initiated in the home soon after the mother gave birth. The mother was exposed to a maternal rehabilitation program in which she received occupational, homemaking, and baby care training. At an Infant Education Center, the infants received a structured program stressing sensory and language stimulation, achievement motivation, problem solving skills, and language development stimulation. The effectiveness of the program was assessed by standardized tests of development and intelligence, experimental measures of learning and performance, and measures of language development.

Findings: The experimental children were found to perform better on a response strategy task, a dimensional response task, and a perseverative responding task. These children also were found to excel on the following language measures: total number of different words spoken, a sentence repetition test, and a test of grammatical comprehension. While the control group was found to decline in measured intelligence (measured by the Stanford-Binet Intelligence Scale and the Cattell Intelligence Test) after 24 months of age, the experimental group increased in measured intelligence, so that at 42 months of age, there was a 33 point IQ difference in the groups.

Duration: 1966-continuing.

Cooperating group(s): Social and Rehabilitation Service, U. S. Department of Health, Education, and Welfare.

31-HA-2 THE EDUCABLE MENTALLY RETARDED CHILD: CURRENT ISSUES AND TEACHER ATTITUDES

Investigator(s): Leon Smith, Ph.D., Coordinator of Research; and Sandra Greenberg, M.S., Evaluation Specialist, Curriculum Research and Development Center in Mental Retardation, Ferkauf Graduate School, Yeshiva University, New York, New York 10003.

Purpose: To assess the attitudes of teachers of educable mentally retarded (EMR) children with respect to current trends in special education (e.g., the inadequacy of the identification process and related sociological issues, the negative effect of the *label* on behavior expectations for the child, and the validity of the class placement issue).

Subjects: 288 teachers in primary EMR classrooms in 16 states.

Methods: The teachers responded to a questionnaire based on hypothetical sketches of students. Nine sketches were developed by varying three levels of socioeconomic status and three types of behavior outside school. Questions were developed in the areas of adaptive behavior, labeling, placement, and curriculum. The analyses consisted of rank order correlation, product-moment correlations, chi-square, and analysis of variance. All analyses were based on a 70 percent return of the questionnaires.

Findings: The results strongly suggest that teacher attitudes are at considerable variance with recent positions taken by special educators. Teachers do not consider both adaptive behavior and IQ in labeling children. Different types of behaviors were found to affect placement for specific socioeconomic class groups.

Duration: November 1971-January 1973.

Cooperating group(s): Bureau of Education for Handicapped, Office of Education, U. S. Department of Health, Education, and Welfare.

31-HC-1 SPEECH PATTERNS OF NORMAL AND RETARDED CHILDREN

Investigator(s): Virginia E. Pendergrass, Ph.D., Psychologist, 838 Northwest 183rd Street, #4, Miami, Florida 33169; and A. C. Clay, Ph.D., Director, Behavior Modification, Goodwill Industries, Miami, Florida.

Purpose: To compare the objective measures of speech for normal and retarded children, including speech rate, percent of nouns and verbs in comparison to descriptive words, type-token ratios, and total speech sample spontaneously reproduced; and to determine whether retarded speech of older children emulates the speech of normals of the same mental age.

Subjects: Six boys in each of three groups: young normals, ages 6 to 8, IQs 90 to 110; adolescent normals, ages 14 to 18, IQs 90 to 110; and retarded adolescents, ages 14 to 18, IQs 35 to 60.

Methods: Each subject was interviewed individually at two different times. Three types of speech samples were obtained at each interview: warm-up speech, response to verbal question, and response to stimulus picture. Each subject was asked to begin speaking in response to the verbal question or visual stimulus as soon as the experimenter had completed the question, and to continue speaking until stopped (3 minutes).

Findings: There appears to be a difference in the structure of the speech of the retarded boys as compared to both normal groups. The total amount of different words produced by retarded boys is greater, but it contains fewer grammatical constructions.

Duration: June 1971-December 1972.

Cooperating group(s): Dade County Public Schools; Sunland Training Center, Miami, Florida.

31-HC-2 STRUCTURES AND VALUES IN GROUPS OF LOW ABILITY ADOLESCENTS

Investigator(s): Alice F. Laing, M.A., M.Ed., Lecturer, Department of Education, University College of Swansea, Singleton Park, Swansea, Wales, United Kingdom.

Purpose: To conduct a longitudinal sociometric investigation of group structures, and to attempt to identify factors related to choice among emotionally mentally retarded pupils.

Subjects: 124 emotionally mentally retarded boys and girls, ages 11 to 14, who attend special schools or remedial departments of comprehensive schools.

Methods: A 3-year follow-up study will be conducted using various sociometric techniques, individual tests, and background data.

Duration: 1966-1972.

Publications: Laing, A. F. Group structures in retarded adolescents. *American Journal of Mental Deficiency*, 1972, 76(4), 481-490.

31-HC-3 EFFECTS OF IMITATIVE AND VERBAL CUEING PROCEDURES ON THE INSTRUCTION-FOLLOWING BEHAVIOR OF THREE SEVERELY RETARDED CHILDREN

Investigator(s): Thomas L. Whitman, Ph.D., Assistant Professor; and Dennis F. Willson, Department of Psychology, University of Notre Dame, Notre Dame, Indiana 46556.

Purpose: To study the effects of imitative and verbal cueing procedures on the instruction-following behavior of severely retarded children.

Subjects: Three severely retarded boys, ages 16 and 18.

Methods: Imitation training consisted of showing the subject how to respond to verbal commands. A combined procedure involved simultaneously showing and instructing the subject how to respond.

Pure verbal probes were used to assess the subject's responsivity to six trained and six untrained instructional requests during baseline, imitation training, combined imitation and verbal cueing training, and reversal periods. During a reversal period, the combined training procedure was extended to the priorly untrained commands and discontinued for the formerly trained commands.
Findings: The performance of two subjects indicated that the imitation training procedure, when individually employed, had little effect upon the subjects' instruction-following behavior. In contrast, the combined procedures produced marked increments in the instruction-following behaviors for all three subjects. Generalization of the training effects to untrained commands was minimal. During the reversal period, all three subjects displayed a marked increment in response to the newly trained commands and a slight decrement in responsivity to the commands previously trained.
Duration: June 1972-completed.
Cooprating group(s): National Science Foundation.

31-HC-4 CEREBRAL CIRCULATION IN CASES OF MENTAL RETARDATION

Investigator(s): John W. Lovett Doust, M.B., F.R.C.P., F.R.C. Psych.; and Ints Podnieks, M.A., Research Scientist, Clarke Institute of Psychiatry, 250 College Street, Toronto, Ontario, Canada.
Purpose: To determine if cerebral hemodynamics is related to mental deficiency.
Subjects: 20 normal children up to age 19, and 20 children attending a school for the mentally retarded who have an IQ of 50.
Methods: A combination of quantified cerebral impedance plethysmography (REG) tests will be given to the children along with psychological tests including the House-Tree-Person Projective Technique, the Benton Visual Retention Test, a figure-ground test, and a closure test. The quantified REG measurements were compared by t-tests for age, laterality, sex, and index group. Correlation coefficients were computed between REG means and the psychological test results.
Findings: Results indicate that a minor degree of cerebrovascular insufficiency appears to characterize mental deficiency.
Duration: 1971-1973.
Cooperating group(s): Metro Toronto Association for Mentally Retarded Children; Ontario Mental Health Foundation.

31-HC-5 INVESTIGATION OF A BIOLOGICAL CLOCK OCCURRING IN CHILDREN WITH MENTAL SUBNORMALITY

Investigator(s): Ints Podnieks, M.A., Research Scientist; and John W. Lovett Doust, M.B., F.R.C.P., F.R.C. Psych., Clarke Institute of Psychiatry, 250 College Street, Toronto, Ontario, Canada.
Purpose: To relate a feature already found in cases of neurological deficit of the central nervous system to the brain function of children with mental deficiency; and to add two psychological monitors of this biological rhythm to existing physiological measures.
Subjects: 20 normal children up to age 19, and 20 children attending a school for the mentally retarded who have an IQ of 50.
Methods: Critical flicker fusion thresholds were obtained by a stroboscope technique and repeated every 30 seconds for 20 minutes. A 15-second maximal speed tapping test was repeated over a similar length of time. Results were plotted against time for several indices and analyzed by t-tests.

Findings: Results indicated a cycle of repetition whose frequency can be reliably distinguished between the normal and retarded groups.
Duration: 1971-1973.
Cooperating group(s): Metro Toronto Association for Mentally Retarded Children; Ontario Mental Health Foundation.

31-HC-6 RESPONSES TO PICTURE-OBJECT SORTING TASK BY TWO GROUPS OF MODERATELY RETARDED CHILDREN

Investigator(s): Betty Hunt Bradley, M.A., Research Psychologist, Columbus State Institute, 1601 West Broad Street, Columbus, Ohio 43223.
Purpose: To analyze the responses of two groups of moderately retarded children to sorting objects in accordance with pictures presented, and to study the relationship between concept formation and perceptual deficit among these children.
Subjects: 60 residents from the Columbus State Institute, ages 4 to 8.
Methods: The subjects' chronological age, IQ, sex, and race will be controlled as closely as possible, but etiology will not be controlled. The subjects are paired on the basis of Gellner classifications: nonauditory autonomic and auditory autonomic. Thirty-five cards illustrating a variety of pictured situations (e.g., a picnic, a fire, cooking, a circus) are presented. Each card is identified by the examiner as to its content. Thirty small toy objects are placed in front of the subject, and he is instructed to select the objects that go with the pictures.
Duration: November 1971-December 1972.
Cooperating group(s): State of Ohio.

31-HE-1 EVALUATION OF PARAPROFESSIONAL SERVICES TO CHILDREN WITH NONPHYSICAL MULTIHANDICAPS

Investigator(s): C. R. Partridge, Ph.D., Psychologist, Children's Health Council, 700 Willow Road, Palo Alto, California 94304.
Purpose: To evaluate a program in which paraprofessionals provide services to children with nonphysical multihandicaps.
Subjects: 25 to 50 children, ages 4 to 17, with learning, emotional, neurological, and communicative disorders; and young adult paraprofessionals who work with the children.
Methods: Paraprofessionals work on a one-to-one basis with the children from 6 to 10 hours a week. Baseline data will be gathered for each child from school records, ratings by teachers and paraprofessionals on a behavioral scale, and tabulations of symptomatic behaviors. Data will be charted to identify a high and low change group. An effort will be made to evaluate the paraprofessionals and their process of engagement with the child. Effects and relationships of various intervention efforts will be sought. Data on cost comparison with more traditional treatment efforts will be obtained.
Findings: The program has gained wide acceptance from the professional staff and community. It appears to be valuable in contributing to rapid growth and change in some children referred to the program.
Duration: January 1971-spring 1975.
Publications: Copies of the report, *A paraprofessional intervention program with multihandicapped children: Design and implementation*, are available from the investigator.

31-HE-2 THE FULLER READING SYSTEM: A SCIENTIFIC METHOD FOR TEACHING READING TO SUPERIOR AND NORMAL CHILDREN

Investigator(s): Renee Fuller, Ph.D., Chief, Psychological Services, State of Maryland, Department of Health and Mental Hygiene, Rosewood State Hospital, Owings Mills, Maryland 21117.
Purpose: To investigate the dimensions of the Fuller Reading System to discover if there are similiarities in the learning process of groups differing markedly in IQ, and to determine the lowest IQ range at which reading with comprehension can be achieved.
Subjects: 10 Negro and 15 Caucasian students, ages 11 to 50; 19 males and 6 females. The students have low IQs and have various learning disorders including verbal associational deficit, visual and auditory memory deficit, aphasia, intelligence deficit, schizophrenia with and without visual and auditory memory deficit, and motivational problems with and without verbal association deficit.
Methods: The subjects were selected on the basis of past reading failure. They had not learned the alphabet after having been exposed in the past to several reading systems individually and in groups. Each subject served as his own control. Various reading texts will be used that cover the alphabet, and several that emphasize reading for meaning through the use of a modified phonic-linguistic approach. Pretest scores at the beginning of the reading system will be compared with posttest scores after reading each book through t-tests. Scores on the Stanford-Binet Intelligence Scale will be collected both before reading and after 1 year of reading and compared by t-tests. Data will be collected during daily reading sessions on each individual. Additional subtests given will include the Wide Range Achievement Test, a comprehension test, an instruction understanding test, word lists, sentence reading, reading inventory, and vocabulary definitions.
Findings: Subjects have progressed three grade levels in 1 year for all the types of learning disorders and IQs tested to date.
Duration: January 1970-continuing.
Publications: Reading with all the senses. *Behavior Today*, 1972, 3(38), 2; Reading need not be IQ-bound. *The Bulletin*, The New York State District Branches, American Psychiatric Association, 1972, 15(1), 12; *Ball-Stick-Bird Reading System*. 30 minutes, 16 mm., color film. Presented at the Eastern Psychological Association Conference, Boston, Massachusetts, April 1972; *The Fuller Reading System*. 30 minutes, 16 mm., color film. Presented at the Twentieth International Congress of Psychology, Tokyo, Japan, August 1972.

31-HF-1 INTELLECTUAL AND PERSONALITY DEVELOPMENT IN CHILDREN WITH GALACTOSEMIA

Investigator(s): Karol Fishler, Ph.D., Chief Clinical Psychologist, Division of Child Development, Children's Hospital of Los Angeles, P. O. Box 54700, Los Angeles, California 90054.
Purpose: To assess the intellectual and emotional development of children with galactosemia, a rare metabolic disorder, and to determine the effects of dietary treatment upon their progress in these areas.
Subjects: 45 children with galactosemia, 22 boys and 23 girls, ages 10 months to 23 years. Some of the children were followed longitudinally for 12 years.
Methods: Medical, nutritional, social, and psychological data have been collected. This study reports only psychological data. Psychological data were derived from the Gesell Developmental Scales (infants to age 3), the Stanford-Binet Intelligence Scale (ages 3 to 8), and the Wechsler Adult Intelligence Scale (over age 16). The Bender Gestalt Test and Draw-A-Person Test (DAP) were also used to identify possible visual-perceptual limitations which are common in galactosemia. Emotional and personality data were collected through projective tests including the DAP, the Sentence Completion Test, the Thematic Apperception Test, and the Rorschach test.

Findings: The best developmental progress was found in the youngest age groups and in the adult population. The school age group is seriously handicapped by visual-perceptual difficulties and consequently has learning problems requiring remedial eduational programs. Those diagnosed and treated from birth show greater ability than those diagnosed later in life.
Duration: 1959-continuing.
Cooperating group(s): Public Health Service, U. S. Department of Health, Education, and Welfare.
Publications: *Pediatrics*, 1972, 50(3).

31-HF-2 USE OF A LOW PROTEIN DIET BASED ON HIGH LYSINE CORN IN THE MANAGEMENT OF PHENYLKETONURIA

Investigator(s): Stephen P. Coburn, Ph.D., Director, Biochemistry Department, Fort Wayne State Hospital and Training Center, 801 East State Boulevard, Fort Wayne, Indiana 46805.
Purpose: To determine whether this diet would provide sufficient control of serum phenylalanine to warrant further study of its use in phenylketonuria.
Subjects: 13 male and 7 female mentally retarded phenylketonuric subjects, ages 15 to 62.
Methods: A control group remained on the normal institutional diet, while one group received lofenalac, and another group received cornmeal for 10 weeks. Serum phenylalanine, phenylpyruvic acid, total protein, a-amino-nitrogen, urea nitrogen, uric acid, creatinine, glucose, and cholesterol were determined at 3-week intervals. Behavioral changes were assessed using Part 2 of the Adaptive Behavior Scale of the American Association on Mental Deficiency.
Findings: Under these conditions, the cornmeal diet provided adequate nutrition and maintained serum phenylalanine at around 10mg/100ml. A reduction in aggressive behavior was noted.
Duration: April 1970-September 1972.
Cooperating group(s): CPC International, Union, New Jersey; Mead Johnson, Evansville, Indiana.

31-HH-1 DEVELOPMENT OF BEHAVIOR MODIFICATION MATERIALS FOR THE PARENTS OF RETARDED CHILDREN

Investigator(s) Bruce L. Baker, Ph.D., Associate Professor; and Louis Heifetz, Ed.M., Teaching Fellow; Department of Education, Read House, Harvard University, Cambridge, Massachusetts 02138.
Purpose: To develop and evaluate instructional materials for parents of retarded children.
Subjects: 180 families of 3- to 12-year-old trainable retarded boys and girls.
Methods: 15 manuals (which are being developed) will instruct parents to use behavior modification methods in interaction with their child to increase his skills in self-help, speech and language, and play and behavior control. Comparisons will be made of the effects of using the manuals alone, the use of the manuals plus group training, the use of the manuals plus individual consultation, and the use of the manuals plus group training and consultation. Comparisons will be made among lower, middle, and upper-middle class families, and on several types of skills. Evaluations will be made of knowledge acquired, facility in carrying out the techniques, changes in the children, and long-range effects. Data will be collected through questionnaires, home observations, and school observations.
Duration: September 1971-August 1973.
Cooperating group(s): National Institute of Child Health and Human Development, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-HH-2 DEVELOPMENT OF MODELS FOR DIAGNOSTIC SERVICES FOR CHILDREN WITH LEARNING PROBLEMS

Investigator(s): Mark N. Ozer, M.D., Director, Program for Learning Studies, Children's Hospital of the District of Columbia, 2125 Thirteenth Street, N.W., Washington, D. C. 20009.
Purpose: To develop models for diagnostic services for children with learning problems.
Subjects: School age children.
Methods: Regular classroom teachers, who identify children as "educationally vulnerable" at the beginning of first grade, were assigned to control and treatment groups. The treatment group employed a clinical diagnostic process; i.e., a diagnostic team spent 30 minutes with each child (three to four children per teacher). A 2 1/2 hour clinical session was conducted later in the year which involved the teacher and her most handicapped student. Feedback evaluation was used at the end of each clinic session and at inervals throughout the year.
Findings: Teacher acceptance and utility of suggestions were each found to be at a high rate. The changes in the teachers' descriptions of the children and school achievement were significantly different.
Duration: September 1965-continuing.
Cooperating group(s): D. C. Health Department; D. C. Pupil Personnel Services; D. C. Board of Education; Bureau of Education for Handicapped, Office of Education, U. S. Department of Health, Education, and Welfare.
Publications: Ozer, M.; Richardson, H. B.; Tannhauser, M.; and Smith, C. Diagnostic evaluation of children with learning problems: An interdisciplinary clinic model. *Clinical Proceedings, Children's Hospital of the District of Columbia*, 1970, 26, 161-178; Yochim, D. and Dworkin, N. A comprehensive interdisciplinary pupil appraisal system using the school psychologist as psycoeducational consultant. *Proceedings, 79th Annual Convention, American Psychological Association, 1971.*

31-HH-3 THE PROGRAM PLANNING PARADIGM: APPLICATION TO THE AREA OF FUNCTIONAL INDEPENDENCE

Investigator(s): Ellen Naor, M.A., Research Analyst; and Earl E. Balthazar, Ph.D., Director, Behavioral Science Research Department, Central Wisconsin Colony and Training School, 317 Knutson Drive, Madison, Wisconsin 53704.
Purpose: To determine the effects of a systematic training program on the functional independence of retarded children.
Subjects: 119 institutionalized, severely or profoundly retarded individuals: 43 males and 76 females. Most subjects were ambulatory.
Methods: The use of a paradigm for systematic program planning, evaluation, and development is illustrated. Standardized measures of behavior based on direct observation (BSAB-I--see Publications below) are an essential element of the paradigm. Baseline and retest measures of self-care skills were obtained before and after the institution of a training program to improve these skills. Program effectiveness was inferred on the basis of stable and significant score changes.
Findings: Spoon usage and finger food were improved on each of the three wards of older residents, males and females. Among younger residents, there was no improvement in spoon usage for either sex. Similar findings for the various wards increased confidence that this assessment of program effects was a correct one. The material described indicates the usefulness of a systemtaic method for program development.
Duration: February 1972-September 1972.
Cooperating group(s): Northern Wisconsin Colony and Training School, Chippewa Falls; Hospital Improvement Program, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: Balthazar, E. E. *The Balthazar scales of adaptive behavior, Section I: The scales of functional independence* (BSAB-I). Champaign, Illinois: Research Press Company, 1971. (4 Parts); Balthazar, E. E. *The Balthazar scales of adaptive behavior, Section II: The scales of social adaptation* (BSAB-II). Champaign, Illinois: Research Press Company, 1973 (in press). (4 Parts).

31-HH-4 PROGRAMMING FOR RETARDED DEAF CHILDREN IN A STATE INSTITUTION

Investigator(s): Sudhansu B. Mitra, Ph.D., Associate Professor and Chairman, Department of Social and Vocational Rehabilitation Counseling, Coppin State College, 2500 West North Avenue, Baltimore, Maryland 21216.

Purpose: To investigate the language training procedure of retarded deaf children at a state hospital for the retarded, and to determine the level of classroom adjustment of the children based on the development of their nonvocal language skills.

Subjects: Eight retarded deaf children, ages 12 to 19, who were borderline to mildly retarded with severe to profound hearing loss.

Methods: Procedural steps were presented for teaching three different components of language skills; namely, the sentence structure, vocabulary, and reading comprehension. A short case history of each child was presented to indicate the level of his current performance. Rating scales were used to evaluate the communication skills and the classroom adjustment of the children. A teacher rating form was used to collect pre- and posttest data to determine the effectiveness of the program. Data were analyzed by Wilcoxon Matched-Pairs Signed-Ranks Test.

Findings: Results indicate that the program significantly increased the vocabulary and use of words in phrases and sentences. The children showed substantial gains in reading grade levels.

Duration: January 1972-June 1972.

Cooperating group(s): Rosewood Hospital School, Owings Mills, Maryland; Maryland State Department of Health and Mental Hygiene, Baltimore.

Publications: Copies of a paper presented at the Alexander Graham Bell Association National Convention, Chicago, July 1972 are available from the investigator.

31-HJ-1 EPIDEMIOLOGY OF MENTAL HANDICAP AND EVALUATION OF RESIDENTIAL SERVICES FOR THE MENTALLY HANDICAPPED

Investigator(s): Albert Kushlick, M.D., Director of Research; R. Blunden, Research Officer; Paul Williams, Research Officer; R. Whatmore, Research Officer; and B. Sexton, Computer Statistician, Wessex Regional Hospital Board, Highcroft, Romsey Road, Winchester, Hampshire, England.

Purpose: To study the epidemiology of mental handicap and to evaluate residential services for the mentally handicapped.

Subjects: All persons known to be mentally handicapped who reside in an area of southern England which has a total population of 2 million.

Methods: Assessment and observation techniques have been developed to compare, over time, the characteristics and problems of the subjects (children and families) and of the organizations serving them (staffing, routines, quality of care, and cost) in areas served by new residential services (locally-based small residential hostels) and old existing hospitals.

Duration: 1963-1976.

Cooperating group(s): Southampton University; Medical Research Council; Department of Health and Social Security.
Publication(s): Kushlick, A. *Royal Society of Health Journal*, 1970, 90, 255-261; Kushlick, A. and Cox, G. *Psychiatric Case Registers*, Department of Health and Social Security, Stat., Rep. Ser. No. 8, HMSO, 1970.

Gifted

31-IA-1 STUDY OF MATHEMATICALLY AND SCIENTIFICALLY PRECOCIOUS YOUTHS

Investigator(s): Julian C. Stanley, Ed.D., Professor, Department of Psychology, Johns Hopkins University, Baltimore, Maryland 21218.
Purpose: To identify students in grades 6 through 8 who are highly talented in mathematics and/or physical sciences; to study these students diagnostically by tests of aptitude, abilities, achievement, interests, and values; and to facilitate their progress in mathematics and physical science.
Subjects: Approximately 12 highly able junior high school students each year, who will be studied through the Ph.D. degree.
Methods: The students to be studied will be identified by means of college level tests of mathematical aptitude, achievement, and scientific reasoning while they are still in upper elementary grades or junior high school. After the talented youths are identified, they are studied intensively. Individually prescribed programs are established to help them to progress faster and at a deeper level in mathematics and physical sciences. These programs include tutoring, association with talented young college students, and seminars. The students attend college evening courses during the summer and during the regular school year, and take correspondence courses. Computer science is stressed for those interested in it. New curricula for gifted youths are being explored.
Findings: Twelve students have been studied to date. Two students, who were assisted before the project began, entered a selective college at age 13. Both have been highly successful; one is now a college sophomore, and the other a junior.
Duration: September 1971-August 1976.
Cooperating group(s): Spencer Foundation, Chicago.

31-IA-2 RELATIONSHIPS OF MASCULINITY-FEMININITY MEASURES TO INTELLECTUAL PERFORMANCE OF GIFTED ADOLESCENTS

Investigator(s): George S. Welsh, Ph.D., Professor; and Donald Baucom, B.A., Research Assistant, Department of Psychology, University of North Carolina, Chapel Hill, North Carolina 27514.
Purpose: To explain the results of a correlational analysis which found that femininity is positively correlated to intelligence.
Subjects: 1,163 gifted adolescents.
Methods: Subjects who fell above or below medians on all masculinity-femininity scales (including the Minnesota Multiphasic Personality Inventory, Strong Vocational Inventory Blank, Adap-

tive Check List, and the Welsh Figure Preference Test) were compared on the Terman Concept Mastery Test (D-48) and on teacher ratings. Seventy-three masculine and 78 feminine boys, and 62 masculine and 62 feminine girls were identified.

Findings: Masculine boys and masculine girls were found to score higher than their feminine counterparts.

Duration: Fall 1972-spring 1973.

Publications: Welsh, G. S. *Gifted adolescents: A handbook of test results.* Greensboro, North Carolina: Prediction Press, 1969.

31-IA-3 AN ANALYSIS OF GIFTEDNESS IN MEXICAN-AMERICANS AND THE DESIGN OF A PROTOTYPE IDENTIFICATION INSTRUMENT

Investigator(s): Ernest M. Bernal, Jr., Ph.D., Project Director; and Ellen Munson Snow, M.A., Consultant, Southwest Educational Development Laboratory, 800 Brazos Street, Austin, Texas 78701.

Purpose: To design a protocol that will effectively identify gifted Chicano children, to provide a functional definition of giftedness in Chicano children, to attempt to achieve a better cross-cultural understanding of gifted behavior, and to make recommendations for developing the potential of Chicano children.

Subjects: Two groups of boys and girls in gifted programs, ages 3 to 8; and two similar groups of nongifted children. The children are Chicanos (bilingual and monolingual) and Anglos, from middle and lower class families.

Methods: People in the Chicano community were interviewed to determine the characteristics of gifted children (in school, home, and community life), the best environment for the gifted child's development, and the relationship of the gifted child to cognitive styles and bilingualism. One sample will be studied in depth using the protocol, standard tests, and observations. The protocol will be revised and used on a second sample for validation.

Duration: July 1972-January 1973.

Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare; Teacher Corps; Creative Learning Center, Dallas, Texas.

Emotionally Disturbed and Mentally Ill

31-JA-1 PSYCHIATRIC IMPAIRMENT IN URBAN CHILDREN OVER TIME

Investigator(s): T. S. Langner, E. L. Greene, J. H. Herson, J. Jameson, J. G. Eisenberg, J. C. Degroot, and E. D. McCarthy, Department of Epidemiology, School of Public Health, Columbia University, 600 West 168th Street, New York, New York 10032.

Purpose: To assess the incidence of mental disorder in children, to estimate children's rates of spontaneous recovery, to assess long-range effects of intervention, and to obtain clues that might separate developmental problems from more enduring or serious behavior.

Subjects: 1,034 randomly selected mothers of children, ages 6 to 18, who reside in Manhattan, New York.

Methods: The mothers described their child, and each child's record was rated by at least two psychiatrists who interviewed the child and mother in one-fourth of the cases. The children were rated on ten 5-point scales of impairment, assigned diagnosis, etc. Initial stresses and

changes in the child's environmental stress over a period of 5 years will be related to changes in strain (which is measured by ratings of degree of psychiatric impairment, diagnoses, and psychometric measures of symptom or behavior patterns).

Duration: September 1971-August 1972.

Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-JA-2 CHILDHOOD DISEASES AND INCIDENCE OF IMPAIRED EMOTIONAL ADJUSTMENT

Investigator(s): Edward T. Auer, M.D., Chairman; George H. Zimny, Ph.D., Professor; Audrey G. Senturia, B.A., Research Associate; and Joanna J. Ellis, Ph.D., Assistant Professor, Department of Psychiatry, St. Louis University, 1221 South Grand Boulevard, St. Louis, Missouri 63104.

Purpose: To investigate the incidence of impairment of emotional adjustment in children with heart disease and with diabetes by comparing them to children with psychiatric disorders.

Subjects: 20 children with congenital heart disease; 18 children with diabetes mellitus; and 20 children (equally divided by sex) who were in a psychiatric residential treatment center. All children were ages 9 to 12.

Methods: Two tests of emotional adjustment were individually administered to the children:(1) the Human Figure Drawing Test (HFD), and (2) the California Test of Personality (CTP). The identification of impairment of emotional adjustment in each group was considered if four or more children (approximately 20 percent) in the group showed this impairment.

Findings: According to the criterion employed, the psychiatric group would be classified as impaired in mental maturity, while the heart diseased and diabetic groups would not. All three groups would be classified as impaired in emotional adjustment. Results of the CTP scales suggest that the heart diseased group is higher in impairment of emotional adjustment than the diabetic group.

Duration: July 1971-January 1973.

Cooperating group(s): Cardinal Glennon Hospital for Children; St. Louis Diabetic Society.

31-JB-1 BIRTH ANOMALY AND LATER PSYCHOPATHOLOGY

Investigator(s): Daniel V. Caputo, Ph.D., Associate Professor, Queens College, City University of New York, Kissena Boulevard, Flushing, New York 11367; and Harvey Taub, Ph.D., Assistant Professor, Staten Island Community College, 715 Ocean Terrace, Staten Island, New York 10301.

Purpose: To determine whether birth anomaly relates to specific psychiatric symptoms in children.

Subjects: 600 children, ages 4 to 16, referred to psychiatric clinics: 200 boys and 100 girls in each group. Half of the children had a history of birth anomaly; the other half had none.

Methods: Hospital records were checked for the presence and type of birth anomaly. The reasons for referral of the children will be coded according to Thomas Achenbach's Classification of Psychiatric Symptomatology in Children. The types and reasons for referral will be compared. Specific types of birth anomaly (e.g., prematurity) will be separately assessed.

Duration: September 1971-continuing.

Cooperating group(s): Wakoff Research Center, Staten Island, New York.

31-JC-1 SELF-ADMINISTERED BEHAVIOR THERAPY FOR CHILDREN

Investigator(s): Paul W. Clement, Ph.D., Director, Child Development Center, Fuller Graduate School of Psychology, 190 North Oakland, Pasadena, California 91101.
Purpose: To develop and evaluate a wide range of self-regulation strategies for undercontrolled children in Pasadena, California public schools.
Subjects: 12 boys, age 9, from lower socioeconomic levels, who are high risk subjects for developing severe antisocial behavior in adolescence and adulthood.
Methods: Data will be based on observations of the children's behavior in the classroom and on the school playground. Each child will be observed from 3 to 5 days a week. The children will be employed as research assistants by the principal investigator. They will not be viewed as patients or clients.
Findings: Preliminary findings indicate that highly undercontrolled children can be taught to regulate their own behavior, but it has not yet been determined which techniques are the most effective.
Duration: November 1971-December 1974.
Cooperating group(s): Pasadena Unified School District.
Publications: Unpublished materials are available from the investigator.

31-JC-2 STUDYING MOTHER-CHILD INTERACTION IN STRUCTURED SITUATIONS: A COMPARISON OF NORMAL AND PROBLEM CHILDREN

Investigator(s): Susan B. Campbell, Ph.D., Director, Department of Psychology, Montreal Children's Hospital, 2300 Tupper Street, Montreal 108, Quebec, Canada.
Purpose: To explore mother-child interaction in relation to normal and abnormal development, and to relate interaction patterns to cognitive styles and childrearing practices.
Subjects: 10 reflective, 10 impulsive, and 10 hyperactive boys, ages 7 to 9, of average intelligence; and their mothers. 20 learning disabled boys and 20 normal boys, ages 7 to 10, of average or better intelligence, and their mothers.
Methods: Children and their mothers were observed interacting in a structured problem solving situation in which both easy and difficult tasks were presented. Maternal and child behavior was coded in 10-second blocks on predefined behavioral categories. Mothers were given a structured interview, a behavior checklist, and two tests of cognitive style. Children were tested on their intelligence and cognitive style.
Findings: Mothers of hyperactive children were found to provide more direct help and encouragement and were more concerned with impulse control than mothers of normal children. These mothers also reported differences in early behavior relating to attention. Mothers of impulsive children were found to have lower expectations for achievement than mothers of reflective and hyperactive children. Mothers of learning disabled children were found to provide more structure than mothers of normal children.
Duration: September 1971-January 1973.
Cooperating group(s): Medical Research Council of Canada.

31-JD-1 SHAPING SELF-CARE BEHAVIORS IN CHILDREN WITH CHRONIC DISABILITIES

Investigator(s): P. L. Sand and S. Rasmussen, Department of Physical Medicine and Rehabilitation, School of Medicine, University of Washington, C304 Health Sciences Building, Seattle, Washington 98105.

Purpose: To develop more efficient bladder training programs for brain damaged children, and to develop procedures for improved in-hospital training of patients and family members concerning exercise programs which are to be continued at home.

Subjects: Selected brain damaged children who are being treated in a hospital rehabilitation setting.

Methods: Detailed behavioral records are kept of the children's progress towards bladder training. Several experimental training procedures will be evaluated based on the use of training pants which indicate urination immediately by a sound signal. A randomly selected group of pediatric rehabilitation patients will receive special training in a home exercise program. Three- to 6-month follow-up comparisons will be made between the special training group and the group receiving conventional training.

Duration: July 1971-June 1972.

Cooperating groups: Research and Training Centers Division, Office of Research Demonstration and Training, Social and Rehabilitation Service, U. S. Department of Health, Education, and Welfare.

31-JE-1 AN INVESTIGATION INTO SOME CLINICAL CORRELATES OF EARLY INFANTILE AUTISM

Investigator(s): Juliet Harper, B.A., Department of Psychology, Macquarie University, North Ryde, New South Wales, Australia 2113.

Purpose: To examine differences, if any, between children in whom the onset of autism is from birth and those in whom there appears to have been a period of normal development before the onset of autism.

Subjects: 131 children and youths, 43 girls and 88 boys, ages 3 to 22, all of whom have been diagnosed as autistic by at least two independent clinicians.

Methods: Case histories were examined to locate children diagnosed as autistic and born between 1950 and 1970 in the Sydney area. The major variables examined are the age of the subject and type of onset of the condition. Other variables include familial mental disorders; age, socio-economic status, and educational level of parents; ordinal position of the child; sex ratio; prenatal, perinatal, and postnatal factors; neurological status; motor development; infantile and early childhood illnesses; intellectual and verbal abilities; exposure to two or more languages; and physical and psychological events associated with the onset of the disorder. The subjects were divided into two groups depending on the type of onset: natal, in which onset was from birth; and acquired, in which there appeared to be a period of normal development prior to onset of autism. Precipitating circumstances in the acquired group were subdivided into Psychological, Physical, Cumulative, and No Event categories on the basis of case history information. The children in the survey are being followed up to obtain current intellectual and verbal assessments of their development. Chi-square analyses will be performed between the two groups.

Duration: January 1972-September 1972.

Cooperating group(s): The Apex Trust for Autism, New South Wales Division.

31-JE-2 BEHAVIOR MODIFICATION IN THE HOME ENVIRONMENT WITH SEVERELY DISTURBED CHILDREN

Investigator(s): Robert B. Hughes, Ph.D., Director and Dale A. Pommer, M.A., Psychologist, Children's Unit, Southeastern Mental Health Center, 2020 South Summit, Sioux Falls, South Dakota 57105.

Purpose: To determine if it is feasible to expect parents to use behavior modification techniques which have been developed in the laboratory.
Subjects: Four boys and two girls, ages 6 to 8. The children are severely emotionally disturbed and manifest symptoms common to autism and childhood schizophrenia.
Methods: Frequency data will be collected by time sampling. The project is set up exactly like a home; married couples live with the children.
Findings: The project has been extremely successful in bringing about self-help skills in children. They are able to function quite well in the home situation without being disruptive; in fact, they are helpful at times.
Duration: September 1969-continuing.
Cooperating group(s): State of South Dakota; Department of Psychology, Augustana College.
Publications: Results may be obtained from: Problems-In-Living Center, 2000 South Summit, Sioux Falls, South Dakota 57105.

31-JF-1 NEUROPHYSIOLOGICAL STUDIES ON CHILDREN OF MAURITIUS

Investigator(s): Turan M. Itil, M.D., Professor and Associate Chairman; and George Ulett, M.D., Ph.D., Professor and Chairman, Missouri Institute of Psychiatry, School of Medicine, University of Missouri, 5400 Arsenal Street, St. Louis, Missouri 63139.
Purpose: To determine electroencephalographic characteristics in a large group of children in order to predict children who will eventually be schizophrenic and/or behaviorally disturbed.
Subjects: 3,000 boys and girls, ages 3 to 5, who live on the Island of Mauritius.
Methods: Data will be collected on analog tape and on paper for electroencephalogram (EEG) evaluation. Data will be compared with data collected in a project which examined children of schizophrenic parents in order to make a prediction. The EEG prediction will be compared in this study with the prediction made by galvanic skin response (GSR) data. The same group of children's GSR data will be collected by Dr. Peter Venables (London), and Drs. Sarnoff Mednick and Fini Schulsinger (New York-Copenhagen). Data will be treated by discriminant analysis, analysis of covariance, and regression analysis, as well as drug cluster analysis, taxonomy models, and network training models. The children will be retested 20 years later.
Duration: July 1972-June 1973; Follow-up testing: June 1992.

31-JF-2 NEUROPHYSIOLOGICAL STUDIES IN HIGH RISK CHILDREN

Investigator(s): Turan M. Itil, M.D., Professor and Associate Chairman, Missouri Institute of Psychiatry, School of Medicine, University of Missouri, 5400 Arsenal Street, St. Louis, Missouri 63139.
Purpose: To define neurophysiological characteristics of high risk children in order to evaluate the genetic hypothesis of schizophrenia and to predict children who will eventually be schizophrenic.
Subjects: 100 children, boys and girls, ages 9 to 11, of schizophrenic parents; 100 children of psychopathic parents, and 100 children of normal parents who have had complications in delivery or during pregnancy.
Methods: Control groups of children will be employed. A digital computer analyzed electroencephalographic, evoked potential, and contingent negative variation measures taken on each child in an effort to determine brain functioning. Data will be analyzed through discriminant analysis, analysis of covariance, and regression analysis, as well as drug cluster analysis, taxonomy models, and network training models.

Duration: November 1971-October 1973; Follow-up testing: October 1983.
Cooperating group(s): Clinical Research Branch and Center for Studies of Crime and Delinquency, National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-JH-1 THE EFFECT OF METHYLPHENIDATE AND HALOPERIDOL ON ATTENTION AND MEMORY

Investigator(s): John S. Werry, M.D., Ch.B., Professor, Department of Psychiatry, School of Medicine, University of Auckland, Auckland, New Zealand.
Purpose: To assess the effects of two commonly prescribed drugs on the cognitive behavior of children.
Subjects: 14 boys and 2 girls, ages 6 to 12, who are hyperactive and emotionally maladjusted.
Methods: The double blind cross-over study employs the administration of two drugs in standardized doses and a placebo control. Methylphenidate is administered in doses of 0.3mg/kg, and haloperidol is administered in doses of 0.025mg/kg and 0.05mg/kg. Each subject is randomly assigned to one of four possible drug conditions. Accuracy and latency data are collected on either a short-term memory task or a vigilance task. The presentation of stimuli is controlled by modular relay programming equipment, and all response data are automatically recorded. Data analysis will be by repeated measures analysis of variance.
Duration: July 1972-January 1973.
Cooperating group(s): Children's Research Center, University of Illinois.

31-JH-2 COMPARATIVE DRUG EFFECTS ON HYPERKINETIC CHILDREN

Investigator(s): Donald F. Klein, M.D., Medical Director, Department of Evaluation; and Rachel Gittelman, Ph.D., Director, Child Development Clinic, Long Island Jewish-Hillside Medical Center, P. O. Box 38, Glen Oaks, New York 11004.
Purpose: To evaluate the relative efficacy of thioridazine, methylphenidate, thioridazine-methylphenidate combination, and placebo on hyperkinetic children.
Subjects: 120 hyperkinetic children, ages 6 to 12; and children of the same age who are not hyperactive and are at least 2 years below their grade level in reading.
Methods: The hyperactive children were randomly assigned to one of the four drug conditions, and the nonhyperactive children took part in a learning problem methylphenidate study. Children receiving the placebo are maintained for 4 weeks, while children receiving active medication are treated for 12 weeks. Thioridazine is administered only in the evening, while methylphenidate is only given in the morning and at noon. Maximum daily doses of each drug were: thioridazine, 300 mg; methylphenidate, 60 mg; combination thioridazine 300 mg plus methylphenidate 60 mg. The treating doctor is free to use lower dosages depending on the clinical response and/or side effects. The assessment battery consists of a number of rating scales and various cognitive and performance measures. These are given at baseline, 4 weeks, 8 weeks, and 12 weeks. Electroencephalogram evaluations will provide neurological screening information and will serve as a potential predictor of drug response. Performance and cognitive tasks include the Wechsler Intelligence Scale for Children, the Wide Range Achievement Test (WRAT), the Grey Oral Reading Test, the Bender-Gestalt Test, Draw-A-Person Test, as well as paired-associate, continuous performance, and visual memory tasks. Data will be analyzed by analysis of variance and chi-square techniques.

Findings: Data on a preliminary sample of 48 children indicate that scores on the WRAT (both reading and arithmetic) were significantly improved by methylphenidate treatment lasting 4 weeks. Over the first month of methylphenidate treatment, the children gained 4 months in reading and 7 months in arithmetic, while the placebo group gained only 1 1/2 months in reading and showed no change in arithmetic. After 12 weeks of treatment, the methylphenidate and placebo groups were no longer significantly different on either the reading or the arithmetic scores of the WRAT. The Grey Oral Reading Test was not sensitive to drug effect at any point, while the children's performances on the Forteus Maze Test showed marked gain in favor of the drug treated group after 4 and 12 weeks of treatment.
Duration: September 1970-August 1973.
Publications: Klein, D. F. and Gittelman-Klein, R. Diagnosis of minimal brain dysfunction and hyperkinetic syndrome. *Pediatrics* (in press); Gittelman-Klein, R. Pilot clinical trial of imipramine in hyperkinetic children. *Pediatrics* (in press).

31-JI-1 EVALUATION OF TREATMENT PROGRAMS

Investigator(s): Arthur L. Wolfe, B.A., Research Coordinator, Convalescent Hospital for Children, 2075 Scottsville Road, Rochester, New York 14623; and Howard P. Iker, Ph.D., Professor, Department of Psychology, University of Rochester, Rochester, New York 14627.
Purpose: To assess the outcome of all children treated at a hospital for the emotionally disturbed.
Subjects: 61 severely disturbed boys and girls, ages 7 to 12 (27 children receive residential treatment and 34 children receive day treatment); and over 300 moderately disturbed boys and girls, ages 6 to 18, who are treated at a child guidance clinic. All children are treated at the Convalescent Hospital for Children, Rochester, New York.
Methods: Data will be collected at admission and discharge from the hospital and at yearly intervals in a follow-up study. Assessment will be by four Devereux Scales on which parents, public school teachers, sociotherapists, and hospital teachers rate the children.
Duration: January 1972-continuing.
Cooperating group(s): Rochester Public Schools.
Publications: Copies of the report are available from the investigator at the Convalescent Hospital for Children.

Juvenile Delinquency

31-KC-1 SERVICE TO THE MENTALLY RETARDED YOUTHFUL OFFENDER

Investigator(s): Eugene P. Schwartz, M.S.W., Program Coordinator, Extension Division; and Muriel Pumphrey, Ph.D., Associate Professor, Department of Sociology, University of Missouri, 8001 Natural Bridge Road, St. Louis, Missouri 63121.
Purpose: To design a training manual for police, courts, schools, and others who serve the mentally retarded youthful offender.
Subjects: Young mentally retarded juvenile delinquents.
Methods: A curriculum will be designed and tested through training workshops with the intended target groups.
Duration: September 1970-June 1973.

31-KD-1 ELECTROENCEPHALOGRAPHIC STUDIES AND OTHER ORGANIC BRAIN STUDIES, CONCERNING FRACTURES, CAUSING DELINQUENCY IN CHILDREN

Investigator(s): George N. Thompson, M.D., Society of Biological Psychiatry, 2010 Wilshire Boulevard, Suite 807, Los Angeles, California 90057.
Purpose: To determine organic brain abnormalities that may contribute to juvenile delinquency in children.
Subjects: Children studied in hospitals and in clinical private practice.
Methods: Neurological, psychiatric, electroencephalographic, and psychological studies were conducted.
Findings: Results indicate that organic brain factors may be causes of numerous cases of juvenile delinquency.
Duration: 1971-1974.

31-KD-2 STATE OF COLORADO MATCHING PROJECT

Investigator(s): Ivan H. Scheier, Ph.D., Director; Judith Lake Berry, B.A., Associate Director; Timothy F. Fautsko, M.A., Staff Research Associate; and Dian Callaghan, B.A., Staff Research Associate. National Information on Volunteerism, Colorado Building, Suite 717, Boulder, Colorado 80302.
Purpose: To develop instruments to measure the compatibility matching of court volunteers and juvenile offenders.
Subjects: Approximately 200 volunteer-client pairs. Volunteers are age 18 and over from various backgrounds; clients are primarily juveniles under age 18.
Methods: Testing will include demographic, attitudinal, personality, and interest activity factors. The relationships of the matched pairs will be evaluated after a 6-month period. The matches that are successful will be compared with those that are unsuccessful in order to determine whether the matching forms and instruments would have been predictive of this outcome.
Duration: July 1972-July 1973.
Cooperating group(s): Colorado Matching Project; State of Colorado Volunteer Services Coordinator; Partners, Inc.; Adams, Boulder, Colorado Springs, Denver District, Denver, and Jefferson County Courts.

31-KK-1 JUVENILE SERVICES PROJECT: AN EXPERIMENT IN DELINQUENCY CONTROL

Investigator(s): John A. Byles, D.S.W., Associate Professor, Department of Psychiatry, McMaster University, Hamilton, Ontario, Canada.
Purpose: To determine the effectiveness of a program that combines family therapists and police officers in the investigation and disposition of cases of juvenile delinquent recidivists.
Subjects: 300 children, ages 8 to 14, who have had at least one previous occurrence of delinquency but have not been charged to appear in court; and their juvenile siblings.
Methods: The subjects were equally divided into experimental and control groups. The experimental subjects' families will receive the services of a family therapist and a police officer, while the control subjects' families will receive traditional service. Program effectiveness will be assessed by indices of repeated occurrences of delinquency and court charges for the identified offender and his siblings.
Duration: September 1971-December 1975.
Cooperating group(s): Juvenile Section, Hamilton Police Department, Hamilton, Ontario, Canada; Welfare Grants Division, Department of Health and Welfare, Canada.

Corrections

31-KP-1 NATIONAL ASSESSMENT OF JUVENILE CORRECTIONS

Investigator(s): Robert D. Vinter, Ph.D., Professor; and Rosemary C. Sarri, Ph.D., Professor, School of Social Work, University of Michigan, 122 South First Street, Ann Arbor, Michigan 48108.

Purpose: To assess the effectiveness of alternative correctional programs for different types of juvenile and youthful offenders by means of objective, empirical measures; to develop policy recommendations and directions for change; and to generate a systematic, comparative, comprehensive description of legal provisions, operating units, and justice systems.

Subjects: A variety of judicial and correctional officials and staff members; and samples of juvenile offenders in various correctional programs in the United States.

Methods: Data will be collected through observation, questionnaires, interviews, and document and file abstractions. Within-type and between-type comparative assessments will be made of resource inputs, programs, and outcomes of a variety of juvenile justice units such as juvenile courts, probation and parole programs, institutions, group homes, and community based treatment programs. Special attention will be given to analysis of differential impact of correctional alternatives on different types of offenders.

Duration: 1971-1976.

Cooperating group(s): Institute of Law Enforcement and Administration of Criminal Justice, U. S Department of Justice; Institute for Continuing Legal Education, University of Michigan; state departments of juvenile corrections; state criminal justice planning agencies; faculties of the University of California, the University of Chicago, and the University of Oregon.

31-KP-2 PARENTS' PERCEPTIONS OF THE EFFECT OF VOLUNTEERS ON JUVENILE PROBATIONERS

Investigator(s): John M. Gandy, Associate Professor; Ruth Pitman; Margaret Strecker; and Candace Yip, Faculty of Social Work, University of Toronto, 246 Bloor Street West, Toronto, Ontario, Canada.

Purpose: To study the perceptions parents have of the effect of volunteers on juvenile probationers.

Subjects: Parents of 40 to 50 juveniles on probation, who are supervised by volunteers for a minimum of 5 months, and for whom supervision was terminated not more than 8 months prior to the interview.

Methods: Data will be collected through interviews with the parents or parent surrogates of the juveniles who received supervision.

Duration: September 1972-March 1973.

Cooperating group(s): Metropolitan Toronto Juvenile Court; Ontario Ministry of Correctional Services.

31-KR-1 FAMILY THERAPY IN THE TREATMENT OF DELINQUENCY

Investigator(s): Martin O. Bielefeld, Ph.D., Department of Psychology, Iowa State University, Ames, Iowa 50010.

Purpose: To determine if family therapy would increase the effectiveness of an institutional treatment program for adolescent delinquent boys.

Subjects: 120 court committed delinquent boys, ages 12 to 17, who entered the Iowa Training School for Boys for the first time, and who had at least one natural parent who voluntarily agreed to participate in the family therapy process.

Methods: The subjects were selected at random from among those committed to the institution without regard to need for family therapy. An experimental group, a control group, and a no-contact control group were used. Forty subjects were assigned to each group. Program outcome will be assessed by analyzing changes as measured by pretest, posttest, and follow-up testing. The battery of instruments used will measure the quality of interpersonal relationships of the subjects with significant others, and the degree of psychopathology present.

Findings: Preliminary results indicate that the addition of family therapy to the traditional institutional treatment program appears to have a positive effect.

Duration: September 1969-October 1972.

Cooperating group(s): Iowa Training School for Boys, Eldora, Iowa.

Publications: O'Neil, C. F. Working with families of delinquent boys. *Children*, 1969, 16, 198-202.

THE CHILD IN THE FAMILY

Family Relations

31-LA-1 COGNITIVE STYLE, FAMILY COMMUNICATION, AND LEISURE

Investigator(s): Serena F. Wade, Ph.D., Associate Professor, Department of Speech Communications, San Jose State College, San Jose, California 95114.
Purpose: To predict different patterns of leisure behavior when socioeconomic status, family communication patterns, and cognitive style (intelligence or creativity) are predictor variables.
Subjects: 363 grade 10 students in four school districts in Santa Clara County, California, equally divided by sex, approximately half from blue-collar and half from white-collar families.
Methods: Three tests of divergent thinking (creativity) will be administered. Intelligence data will be collected from school files, and questionnaires will gather information related to family communication and leisure activities. Criterion variables will include media and nonmedia types of leisure activities.
Findings: As much as 40 percent of the variance in leisure activities can be predicted if the three types of predictor information are collected: socioeconomic status, family communication, and cognitive style. Alone, these variables are not as powerful as in combination with leisure activity variables in interaction.
Duration: July 1971-September 1972.
Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-LA-2 THE COMPARATIVE INFLUENCE OF MOTHER AND OLDER SIBLING ON THE CATEGORIZATION BEHAVIOR OF A YOUNGER SIBLING

Investigator(s): Victor G. Cicirelli, Ph.D., Professor, Department of Child Development and Family Life, Purdue University, Lafayette, Indiana 47907.
Purpose: To determine the difference in the categorization behavior of a younger sibling after he has been aided in a practice session by his mother, an older sibling, or both; and to relate family sizes and sexes of the siblings to the categorization behavior of the younger sibling.
Subjects: 160 grade 1 children (age 6) with a grade 3 sibling (age 8), half from two-child families and half from families of four or more children. The four possible sex combinations are equally represented.
Methods: A 2 X 2 X 2 X 2 X 2 factorial design will be used with three sibling structure factors (sex of the younger sibling, sex of the older sibling, and family size) and two treatment factors. The first treatment factor consists of *no mother* and *mother* conditions, depending on whether the child's mother is absent or present during the task session. The second treatment factor consists of *no sib* and *sib* conditions, depending on whether the child's older sibling is present or absent. Children from each of the subgroups will be randomly assigned to four treatment groups: the child either works alone on the sorting task in a practice session with his mother, with his sibling, or with both. All children work alone on a subsequent test task.
Duration: August 1972-August 1973.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

31-LA-3 RELATIONSHIP OF SIBLING STRUCTURE AND INTERACTION TO CATEGORIZATION ABILITY

Investigator(s): Victor G. Cicirelli, Ph.D., Professor, Department of Child Development and Family Life, Purdue University, Lafayette, Indiana 47907.
Purpose: To determine the interaction of sibling pairs working on an object sorting task and its relation to the younger sibling's categorization ability on a subsequent task.
Subjects: 160 sibling pairs from two-child families: kindergarten children with grade 2 siblings, kindergarten children with grade 4 siblings, grade 2 children with grade 4 siblings, and grade 2 children with grade 6 siblings. Each group was further divided into four smaller groups: boys with older brothers, boys with older sisters, girls with older brothers, and girls with older sisters.
Methods: A 2 X 2 X 2 X 2 X 2 factorial design was used with four sibling structure factors (sex of the younger sibling, sex of the older sibling, age of the younger sibling, and age spacing between the two siblings) and one treatment factor. For half of the sibling pairs in each group, the younger sibling made an initial object sort alone; for the remainder, the older sibling helped the younger sibling on the object sorting task. The siblings' behavior during the interaction session was manually and tape recorded and coded for analysis. All younger siblings were given a second object sorting task and measures of categorization abilities were taken, including type of category, time taken to accomplish the sorting task, total number of groups formed, number of ungrouped items, and mean number of items per group. Analysis will relate sibling structure variables (e.g., sex, age spacing) and sibling interaction variables to the younger siblings' categorization abilities.
Duration: August 1971-October 1972.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

31-LA-4 PARENTAL POWER AND INFLUENCE UPON ADOLESCENTS

Investigator(s): Thomas Ewin Smith, Ph.D., Associate Professor, Department of Sociology, University of South Carolina, Columbia, South Carolina 29208.
Purpose: To identify antecedents of some determinants of parental influence upon adolescents.
Subjects: Several thousand students in grades 6, 8, 10, and 12, in schools in the central city of a large metropolitan area and in a suburban district in a medium sized metropolitan area, and several hundred selected parents of the students.
Methods: Student data were gathered through a highly structured questionnaire, and data from parents were gathered through semistructured interviews. Two years later, longitudinal data will be gathered on students and parents from this sample.
Duration: September 1971-August 1974.
Cooperating group(s): National Science Foundation.

31-LF-1 INTRAFAMILIAL COPING BEHAVIOR AND BEHAVIOR DISTURBANCE OF ADOLESCENTS

Investigator(s): Eliot H. Rodnick, Ph.D., Professor; and Michael J. Goldstein, Ph.D., Professor, Department of Psychology, University of California at Los Angeles, 405 Hilgard Avenue, Los Angeles, California 90024.
Purpose: To identify attributes of intrafamilial coping which may be related to particular patterns of current adolescent behavior disturbance and the course of their subsequent adjustment.

Subjects: Adolescents, ages 13 to 18, living in intact homes, who were referred to the University of California at Los Angeles Psychology Clinic; their parents; and one nonreferred sibling. Over 60 families have been studied.

Methods: The subjects were involved in special role playing tasks which used various combinations of child-parent dyads. Recorded interviews were conducted with the subjects.

Findings: Systematic relationships were found between particular patterns of adolescent disturbance and parent-child and parent-parent interaction in such attributes as familial cohesivensss, psychophysiological responsivity, differential modes of social influence, and power assertion.

Duration: 1965-1975.

Cooperating group(s): National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare; Scottish Rite Foundation.

Publications: Goldstein, M. J. *et al.* A method for studying social influence and coping patterns within families of disturbed adolescents. *Journal of Nervous and Mental Disease*, 1968, 147, 233-251; Goldstein, M. J. *et al.* Interpersonal themes in the thematic apperception test stories of families of disturbed adolescents. *Journal of Nervous and Mental Disease*, 1970, 150, 354-365; Alkire, A. A. *et al.* Social influence and counterinfluence within families of four types of disturbed adolescents. *Journal of Abnormal Psychology*, 1971, 77, 32-41.

31-LF-2 OFFSPRING OF SCHIZOPHRENIC PARENTS: DEVELOPMENT FROM BIRTH

Investigator(s): Joseph Schachter, M.D., Ph.D., Director, Research in Child Psychiatry; Joyce Kerr, Ph.D., Director, Laboratory of Psychophysiology; Naomi Ragins, M.D., and Elizabeth Elmer, M.S.W., Directors, Laboratory of Interactional Behavior, Pittsburgh Child Guidance Center, 201 DeSoto Street, Pittsburgh, Pennsylvania 15213.

Purpose: To determine if newborn offspring of schizophrenic parents exhibit distinguishing physiological characteristics, and if newborns with deviant physiological characteristics show early deviant development.

Subjects: 112 newborns, 23 of whom had a schizophrenic mother. (The mothers were from the lower socioeconomic class and were prenatal care patients.) Thirty infants, 14 of whom had a schizophrenic mother, were followed from birth to 15 to 18 months.

Methods: Infants were assigned to one of three groups: (1) families with a definite schizophrenic parent, (2) families with a possible schizophrenic parent or first degree relative, and (3) families with no schizophrenic parent or first degree relative. Heart rate and electroencephalographic responses of newborns to three intensities of click stimuli were measured. Follow-up studies consisted of the Bayley Test of Development, and assessment of developmental problems, and ratings of mother-infant interaction.

Findings: Newborn offspring of schizophrenic parents exhibited distinguishing physiological characteristics, which cannot be attributed to a number of prenatal and/or perinatal factors. The follow-up study indicates that physical growth and physical health are deficient among offspring of schizophrenics.

Duration: January 1970-December 1979.

31-LF-3 SPECIAL EXPERIENCES IN EARLY CHILDHOOD

Investigator(s): James E. Kean, M.A., Co-director; and Geraldine Wilson, M.D., Co-director, Special Experiences in Early Childhood Program, 3602 West Dallas Street, Houston, Texas 77019.

Purpose: To determine if there are any behavioral or developmental problems in children of drug abusing parents as a result of prenatal experience of addiction and the early birth trauma of withdrawal.

Subjects: Approximately 60 Anglo, Black, and Chicano boys and girls, ages 18 months to 6 years. The children have normal intelligence but display some behavior problems and language deficits and have limited environmental experiences.

Methods: Thirty children, ages 3 to 6, are equally divided into three groups: Group I is in the classroom 5 days a week for 4 hours; Group II consists of children seen at home by a social worker; and Group III children have been evaluated but will not be followed. Thirty children, ages 1 to 2, are equally divided into three groups: Group I receives an educational experience for 1 1/2 hours a week; Group II consists of children who are followed in the home by a social worker; and Group III children are initially evaluated and are not seen again for 1 year. Evaluations will include medical, educational, psychological, and family area dynamics.

Duration: March 1972-May 1973.

Cooperating group(s): Maternity and Infant Care Department, Jefferson Davis Hospital; Department of Pediatrics, Baylor College School of Medicine; Interagency Program for Multiple Handicapped Children.

31-LF-4 ANALYSIS OF COMMUNICATION EFFICIENCY BETWEEN HYPERACTIVE CHILDREN AND THEIR PARENTS

Investigator(s): Arnold E. Nelson, M.S., Research Fellow, Institute of Behavioral Research, Texas Christian University, Fort Worth, Texas 76129.

Purpose: To clarify parental differences associated with efficient verbal communication with their hyperactive child, to assess electrophysiological indices associated with differences in communication efficiency, and to determine some dimensions of parent-child relations associated with efficient communication.

Subjects: 16 boys and girls, ages 6 to 10, who attend a school for children with learning disabilities. The children have average or above average intelligence and are without significant neurological dysfunctions.

Methods: Communication efficiency will be determined in a laboratory task in which communication between participants is directed towards correct identification of novel graphic design. The number of correct identifications during each dyadic communication represents communication efficiency and will be evaluated by analysis of variance. The duration of the communication and the choice of concepts will be content analyzed. Heart rate and skin resistance measures will be recorded from the child during verbal exchanges with his parent. Changes in these measures will be compared with identification efficiency and the content analyzed data. Parent-child relations will be studied through the Roe-Siegelman Questionnaire, with parents responding about themselves and their spouses. Several multivariate techniques will be used to determine discriminant factors and the relationship between communication efficiency, electrophysiological measures, and factors in parent-child relations.

Duration: August 1972-August 1973.

Cooperating group(s): Starpoint School, Texas Christian University; Department of Psychology, Texas Christian University.

31-LG-1 EVALUATION OF GENETIC COUNSELING

Investigator(s): F. C. Fraser, Ph.D., M.D., Professor, Department of Medical Genetics, Montreal Children's Hospital, 1615 Cedar Avenue, Montreal 25, Quebec, Canada.
Purpose: To follow up families with genetic diseases who previously have been counseled; and to evaluate their attitudes towards their disease, its genetic implications, and the counseling they received.
Subjects: Approximately 100 families with assorted genetic diseases.
Methods: Parents were interviewed and completed an extensive questionnaire. Data on attitudes and reproductive performance will be compared for the following types of diseases: high risk, high severity; high risk, low severity; low risk, high severity; and low risk, low severity.
Duration: 1970-1975.
Cooperating group(s): Medical Research Council, Canada.

Childrearing

31-MA-1 PREDICTION OF CHILD PERSONALITY FROM FAMILY ATTITUDE MEASURES

Investigator(s): Keith Barton, Ph.D., Research Assistant Professor; T. E. Dielman, Ph.D., Research Assistant Professor; and R. B. Cattell, Ph.D., D.Sc., Professor, Department of Psychology, University of Illinois, Urbana, Illinois 61801.
Purpose: To determine if certain family attitude measures are consistently and significantly related to child personality measures.
Subjects: 191 mothers and 144 fathers of children in grades 6 and 7.
Methods: Parents were administered the Family Attitude Measure (FAM), and the children were given the High School Personality Questionnaire (HSPQ). Regression analyses were conducted between the two measures.
Findings: Significant relationships were found between the HSPQ and the FAM factors.
Duration: 1970-completed.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

31-MB-1 CHILDREARING PRACTICES AND ACHIEVEMENT IN SCHOOL

Investigator(s): Keith Barton, Ph.D., Research Assistant Professor; T. E. Dielman, Ph.D., Research Assistant Professor; and R. B. Cattell, Ph.D., D.Sc., Professor, Department of Psychology, University of Illinois, Urbana, Illinois 61801.
Purpose: To determine if certain childrearing practices are consistently and significantly related to school achievement.
Subjects: 169 students in grade 6 and 142 students in grade 7, approximately equally divided by sex, primarily from middle class backgrounds.
Methods: Parents were administered the Child Rearing Practices Questionnaire (CRPQ). The children's grades and their performances on standardized achievement tests were used as measures of school achievement. CRPQ scores were used as predictors in a regression analysis. Separate analyses were conducted for fathers and mothers.

Findings: Significant relationships were found between CRPQ factors and school achievement for both fathers' and mothers' data.
Duration: 1970-completed.
Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

31-MB-2 FAMILY INTERACTION AND COGNITIVE STYLE

Investigator(s): Albert S. Dreyer, Ph.D., Professor, Department of Child Development and Family Relations, University of Connecticut, Storrs, Connecticut 06268.
Purpose: To study the relationship between childrearing behavior and cognitive style by directly observing patterns of family interaction in the home and in the laboratory.
Subjects: 40 white, middle class, kindergarten children, equally divided by sex, representing extreme cognitive groups.
Methods: Interaction within the families of these children was observed in two settings: (1) in the natural setting of their home around dinnertime, and (2) in the laboratory where six tasks were administered which were designed to elicit the dimensions of autonomy, power, and communication behaviors of interest. A two-channel tape recorder recorded an observer's dictated comments concerning the family's interaction on one track, and the family's verbatim conversation on the other track. The observer's recording could not be heard by the subjects. The home and laboratory observations are being coded for various family process variables (interruption, initiation, and participation rates) and family content variables (influence, evaluation, and feedback behavior).
Duration: July 1967-continuing.
Cooperating group(s): National Institute of Child Health and Human Development, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.
Publications: Dreyer, A.S.; Nebelkopf, E.; and Dreyer, C. A. Note concerning stability of cognitive style measures in young children. *Perceptual and Motor Skills*, 19[illegible], 68, 933-934; Dreyer, A. S.; Dreyer, C. A.; and Nebelkopf, E. Portable rod-and-frame test as a measure of cognitive style in kindergarten children. *Perceptual and Motor Skills*, 1971, 33, 775-781.

31-MB-3 OBSERVED PATERNAL BEHAVIOR WITH PRESCHOOL CHILDREN

Investigator(s): Norma Radin, Ph.D., Associate Professor, School of Social Work, University of Michigan, Ann Arbor, Michigan 48104.
Purpose: To refine a methodology for observing fathers from diverse backgrounds interacting with their 4-year-old children at home, and to determine the realtionship between observed behaviors and measures of the child's intellectual functioning.
Subjects: 160 white fathers and their 4-year-old children. Half of the fathers are from the middle class; half, from the lower class. Half of the fathers have sons; half have daughters.
Methods: Fathers will be interviewed at home with no one else present but their preschool child. Sessions will be tape recorded and paternal behaviors involving the child subsequently will be coded according to predetermined categories. One year and one week later, the child will be tested on Stanford-Binet, Veroff's assessment of achievement of motivation, and DeVries' standardized Piagetian tasks. Observed paternal behaviors will be correlated with child measures taken concurrently and at the end of the kindergarten year.
Duration: September 1972-June 1975.

Cooperating group(s): Public schools in Monroe, Flint, Plymouth, and Willow Run, Michigan; National Institute of Child Health and Human Development, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.
Publications: Radin, N. Father-child interaction and the intellectual functioning of four-year-old boys. *Developmental Psychology*, 1972, 6(2), 353-361.

31-MB-4 FAMILY SIZE AND PARENTAL CONTROL

Investigator(s): Phillip R. Kunz, Ph.D., Associate Professor; and Evan T. Peterson, Ph.D., Professor and Chairman, Department of Sociology, Brigham Young University, Provo, Utah 84601.
Purpose: To study the impact of family size in terms of the adolescent's perception of the extent of control efforts made by his mother and father.
Subjects: 3,331 male and 3,414 female adolescents from 46 high schools in the United States.
Methods: Within each individual high school, the sample was either the total population of the high school or a cluster sample selected from required classes such as mathematics, English, and health. The students completed a questionnaire under the direction of the teachers in the classroom. Approximately 1 hour was required to complete the four-page questionnaire. Sex and social class were controlled.
Findings: No relationship was found between family size and parental control efforts except among middle class students.
Duration: 1971-1973.

31-MC-1 HOME START

Investigator(s): Ralph Scott, Ph.D., Director, Educational Clinic and Professor, Department of Educational Psychology and Foundations, University of Northern Iowa, Cedar Falls, Iowa 50613.
Purpose: To enable parents to become more effective teachers of their preschool children, and to facilitate children's preschool development so they are more ready for classroom learning.
Subjects: 47 black and 24 white children residing in an economically disadvantaged area, seen from the ages of 2 to 5 years.
Methods: The Horizontal Home Start Program provided for one academic year of largely classroom-contained prekindergarten experiences for 4-year-old children. The program invited parental and community involvement, but Home Start personnel did not work in the children's homes. The Vertical Home Start Program served the same group of children when they were 2 to 5 years of age, and stressed intrafamily stimuli and encouragement, which amounted to a basic teacher training course for all family members, particularly the mother. Paraprofessional aides made weekly visits to the children's homes. Baseline data included the children's scores on the Stanford-Binet Intelligence Scale and the mothers' scores on the Wechsler Adult Intelligence Scale. When the child was 5 years old, the Primary Mental Abilities Tests (PMA) and Cognitive Abilities Test (CAT) were administered. A control group was composed of non-Home Start children and older siblings of Home Start children who resided in the target areas, and who took the PMA test in standard first grade group testing. (See *Research Relating to Children, Bulletin 25*, 1969, 69).
Findings: Children in the experimental group were found to significantly improve their IQ performance relative to their scores before entering the program and relative to the control group scores.

Duration: September 1971-August 1974.
Cooperating group(s): Waterloo Community Schools; Black Hawk County Welfare Department; Black Hawk County Day Care Center; Black Hawk County Mental Health Center; Waterloo Sanitation Department; Black Hawk Buchanan County Board of Education; Ministrial Association.

31-MC-2 PARENT TRAINING: BEHAVIOR MODIFICATION WITH RETARDED CHILDREN

Investigator(s): Allen D. Ratzlaff, M.A., Chief, Children's Service; Nancy S. Ratzlaff, M.A., Psychologist, Rome State School, P.O. Box 550, Rome, New York 13440; and Owen E. Pittenger, Ed.D., Professor, Department of Psychology, State University College at Oswego, Oswego, New York 13126.
Purpose: To train parents of noninstitutionalized severely and profoundly retarded children to use behavior modification techniques.
Subjects: 15 parents of profoundly and severely retarded children (ages 2 to 16) who are in a program to train their children at home.
Methods: The parents receive 2 1/2 hours of classroom instruction each week for 6 weeks. They will be taught through lecture, discussion, role playing, videotape, and videotape feedback. The parents' training efforts will be videotaped in their homes. The program will include techniques for teaching simple commands, self-help skills, and socialization and communication skills. Each child will act as his own control. Baseline data will be obtained through periodic follow up.
Findings: The parents were found to be extremely enthusiastic. They have learned to apply the behavior modification techniques. Parents report positive changes in their children, and they are confident that they can teach and more fully enjoy their children.
Duration: September 1972-November 1972.
Cooperating group(s): Herkimer County Association for Retarded Children; U. S. Department of Health, Education, and Welfare.

31-MC-3 EVALUATION AND ENRICHMENT OF FAMILIES

Investigator(s): Luciano L'Abate, Ph.D., Professor, Department of Psychology, Georgia State University, Atlanta, Georgia 30303.
Purpose: To evaluate the outcome of specially prepared family enrichment programs consisting of exercises and problem solving practices derived from clinical practice and theory.
Subjects: Approximately 50 upper middle class, white families with children.
Methods: Newly developed family evaluation tests will be administered to families both before and after the enrichment programs are conducted.
Duration: 1970-continuing.
Cooperating group(s): Child Development Laboratory and Family Study Center, Georgia State University.

SOCIOECONOMIC AND CULTURAL FACTORS

31-NB-1 OCCUPATIONAL ADJUSTMENT OF MINNESOTA HIGH SCHOOL GRADUATES

Investigator(s): George Donohue, Ph.D., Professor and Head; Dario Menanteau, Ph.D., Assistant Professor; and Clarice Olien, M.A., Assistant Professor, Department of Sociology, University of Minnesota, 279 North Hall, St. Paul Campus, St. Paul, Minnesota 55101

Purpose: To analyze the factors associated with educational preferences, expectations, and attainments of high school graduates on a longitudinal and cross-cultural basis.

Subjects: Male and female high school seniors in metropolitan, nonmetropolitan, public, and private high schools in Minnesota (30 schools, 4,000 students), Chile (47 schools, 2,460 students), and Bolivia (36 schools, 1,100 students).

Methods: Questionnaires were administered to students in selected schools at the end of their senior year by school administrators and counselors. Included in the questionnaire were items on occupational and educational expectations and familism, situational, and attitudinal factors hypothesized to be related to occupational choice. The data will be analyzed (1) for each individual country, including longitudinal analyses with data previously collected in Minnesota, and data to be collected within the next 3 years in Bolivia and Chile; (2) on a cross-cultural basis for Latin America and Minnesota data; and (3) on a comparative basis for Chile and Bolivia.

Findings: Preliminary results suggest a considerable lack of systematic counseling services for students in Bolivia and Chile, extremely high educational aspirations, and high concentrations of occupational plans in the fields of education, medicine, and engineering. In both Latin American countries, the lack of student interest in occupations related to agriculture, technology, and management was noticeable. Measurements of some value orientations of Bolivian students suggest a considerable degree of cultural instability and opposed values among respondents. Traditional orientations (i.e., familism) seem to be strongly active in opposing modern orientations (i.e., activism, pragmatism, belief in science and technology). A relatively high degree of social alienation has been found among students in Bolivia.

Duration: 1967-continuing.

Cooperating group(s): Agricultural Experiment Station, Agricultural Extension Service, Graduate School, University of Minnesota.

Publications: Copies of articles may be obtained from: Ministry of Education, Direccion de Planeamiento Educativo, Casilla 5985, La Paz, Bolivia. Menanteau, D. Social conflict and youth in Bolivia: Attitudes and value orientations in a society in transition. *Aportes, Journal of Sociological Studies and International Relations*, 1972. (Paris, France); Menanteau, D. The historical conflict between the hope of legend and contemporary pessimism: Its impact upon social and cultural values of Bolivian youth. *Journal of the Academy of History and Culture*, 1971, 51(456), 61-100. (In Spanish); Menanteau, D. Students, their values and occupational goals. *Educacion Hoy*, 1972, 2(9), 5-19. (In Spanish).

31-NB-2 THE EFFECTS OF A CAREER EDUCATION PROGRAM

Investigator(s): Jack M. Thompson, Ed.D., Director, Curricular Services; and Darryl Laramore, Ph.D., Coordinator, Vocational Guidance, Sonoma County Office of Education, 2555 Mendocino Avenue, Room 111E, Santa Rosa, California 95401.

Purpose: To determine the effects of a career education program upon the learner.
Subjects: 500 boys and girls, ages 13 to 18, who attend junior and senior high schools in a semirural area.
Methods: Experimental and control groups were pre- and posttested on a self-designed career education survey which was based on California Career Education concepts. Statistics employed included means, standard deviations, t-tests, split half reliabilities, and factor analyses.
Findings: No consistent differences were found between the groups. Construct validity and reliability were found for the Career Education Survey.
Duration: August 1971-October 1972.
Cooperating group(s): Santa Rosa City Schools, California; New Haven School District.

31-NB-3 FACTORS AFFECTING OCCUPATIONAL CHOICE AND ADJUSTMENT OF RURAL YOUTHS

Investigator(s): Virginia Geurin, Ph.D., College of Business Administration; J. Martin Redfern, Ph.D., Assistant Professor, Department of Agricultural Economics; and James F. Golden, Ph.D., University of Arkansas, Fayetteville, Arkansas 72701.
Purpose: To determine the factors that affect the capabilities, aspirations, and achievements of high school graduates in southwest Arkansas.
Subjects: 165 male high school seniors, ages 17 to 19. Most of the subjects were from rural farm and nonfarm families, many of which were low income; 44 were Black. Subjects constituted the entire population of male seniors in seven white and three Black secondary schools.
Methods: The boys were tested on the General Aptitude Test Battery, the Davis Reading Test, and the Occupational Aspirations Scale. Least squares multiple regression models were used to determine the independent variables associated with aspirations, capabilities, and achievements.
Findings: Seventy percent of the boys overaspired significantly for their capabilities. The main limiting factors in capabilities were low reading speed and comprehension. The basic educational curricula were determined to be inadequate. Expectations of later achievement have not been met.
Duration: 1965-1972.
Cooperating group(s): Economic Development Division, Economic Research Service, U. S. Department of Agriculture; College of Education, University of Arkansas, Fayetteville.
Publications: Jordan, M. F.; Golden, J. F.; and Bender, L. D. *Aspirations and capabilities of rural youth in relation to present and projected labor market requirements*. Bulletin 722. Fayetteville: Agricultural Experiment Station, University of Arkansas, May 1967.

31-NG-1 BEHAVIORAL DEVELOPMENT OF CHILDREN IN JAPAN AND AMERICA OVER THE FIRST 6 YEARS OF LIFE

Investigator(s): William Caudill, Ph.D., Chief, Section on Personality and Environment, National Institute of Mental Health, 9000 Rockville Pike, Building 10, Room 3D41, Bethesda, Maryland 20014.
Purpose: To determine how early and in what ways culture, as mediated through the caretaker, influences the behavior of infants and children.
Subjects: 30 Japanese and 30 American firstborn infants, ages 3 to 4 months, equally divided by sex. 20 children in each group are followed up at ages 2 1/2 and 6 years.

Methods: Direct observations will be made in the homes of the infants and children. Behaviors of the child and others in the home are scored in terms of a predetermined set of categories over several hundred consecutive observations at each age level.

Findings: Despite individual differences, culture influences the patterns of infant behavior by the age of 3 to 4 months.

Duration: 1961-1975.

Publications: Caudill, W. and Plath, D. W. Who sleeps by whom? Parent-child involvement in urban Japanese families. *Psychiatry*, 1966, 29(4), 344-366; Caudill, W. and Weinstein, H. Maternal care and infant behavior in Japan and America. *Psychiatry*, 1969, 32(1), 12-43; Caudill, W. A comparison of maternal care and infant behavior in Japanese-American, American, and Japanese families. In W. Lebra (Ed.), *Mental health research in Asia and the Pacific*. Honolulu: East-West Center Press (in press).

EDUCATIONAL FACTORS AND SERVICES

General Education

31-OA-1 A MORE APPROPRIATE PROGRAM FOR BOYS IN THE PRIMARY GRADES

Investigator(s): Don Knowles, Ph.D., Associate Professor, Faculty of Education, P. O. Box 1700, University of Victoria, Victoria, British Columbia, Canada.
Purpose: To develop modifications in the grade 1 school program (including male teacher and revised curriculum), and to evaluate their effectiveness on children's achievement, sex-typing, and school interests.
Subjects: 120 boys and girls, ages 6 and 7, from lower middle class families. 60 children are assigned to the modified program, and 60 children are control subjects who attend school in regular classrooms.
Methods: A static group comparison will be made between a class assigned to a male teacher who provided the modified program (revised curriculum) and students in regular classes in the same and in different schools. Children will be randomly assigned within each school. Data will be collected three times during first grade by individual interviews using standard measures.
Duration: September 1970-December 1972.
Cooperating group(s): Educational Institute of British Columbia; School District No. 61, Victoria.

31-OA-2 INTERDEPENDENT LEARNING MODEL FOLLOW-THROUGH PROJECT

Investigator(s): Don Wolff, M.S.W., Co-Director; and Jack Victor, Ph.D., Co-Director, Interdependent Learning Model Project, Institute for Developmental Studies, New York University, New York, New York 10003.
Purpose: To develop an early elementary educational approach based largely on peer group interaction and instructional games.
Subjects: Over 2,500 children from low income families, in grades kindergarten through 3, attending schools in Atlanta, Georgia; Lansing, Michigan; and New York City.
Methods: The model will be developed and implemented to test the overall effects of the educational approach. Student groups similar in socioeconomic status have been identified for each site and may serve as controls.
Findings: Classrooms using the partially developed and partially implemented model have shown no decrement in academic achievement and, in some cases, have increased scores.
Duration: 1968-1977.
Cooperating groups: Office of Education, U. S. Department of Health, Education, and Welfare; Atlanta School System; Lansing School System; New York City School System.

31-OA-3 NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

Investigator(s): J. Stanley Ahmann, Ph.D., Director, National Assessment of Educational Progress, Education Commission of the States, 1860 Lincoln Street, Denver, Colorado 80203.
Purpose: To make available census-like data on the educational attainments of youth, and to measure any growth or decline which takes place in selected aspects of the educational attainments of youth in certain subject areas.
Subjects: An annual national sample of 80,000 to 90,000 youths and young adults, ages 9, 13, 17, and 26 to 35.
Methods: A determination will be made of the objectives of the educational system in this country based on three criteria: the objectives considered important by scholars, desirable by lay citizens, and acceptable as educational tasks by the schools. Questions and tasks (or exercises) are written to determine how well the objectives are being achieved. The exercises are administered to a random sample of youths throughout the United States. Both group and individual assessment techniques will be used. Ten subject areas were chosen for assessment: citizenship, science, writing, music, mathematics, literature, social studies, reading, art, and career and occupational development. Variables to be studied include geographic region, the size of the community, the type of community, and the sex, color, and socioeducational background of the youths.
Duration: July 1965-continuing.
Cooperating group(s): Carnegie Corporation, New York; Ford Foundation; National Center for Educational Research and Development, Office of Education, U. S. Department of Health, Education, and Welfare.
Publications: The following reports may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402: *Science National Results*, $1.75; *Science National Summary*, $0.35; *Science National Commentary*, $0.50; *Citizenship National Results*, $1.25; *Citizenship National Commentary*, $0.40; *Writing National Results*, $1.50.

31-OA-4 A COMPARATIVE STUDY OF AN OPEN AND TRADITIONAL CLASSROOM IN A PUBLIC SCHOOL

Investigator(s): Richard A. Winett, Ph.D., Assistant Professor, Department of Psychology, University of Kentucky, Lexington, Kentucky 40506.
Purpose: To systematically compare open and traditional classrooms on a variety of measures.
Subjects: Children from various socioeconomic backgrounds, who attend two third grade classes.
Methods: Data will be collected through traditional achievement tests and observational measures specifically designed for open classrooms, including peer and teacher-child social interaction and affective measures.
Duration: September 1972-June 1973.
Cooperating group(s): Fayette County Schools, Kentucky.

31-OB-1 GROUP CONSULTATION WITH GRADE 1 TEACHERS: AN EXPERIMENT IN BEHAVIOR MANAGEMENT

Investigator(s): John A. Byles, D.S.W., Associate Professor, Department of Psychiatry, McMaster University, Hamilton, Ontario, Canada.
Purpose: To reduce dysfunctional behavior in the classroom, and to reduce the labeling of children in the school system as maladaptive.
Subjects: 28 female grade 1 teachers with 5 or more years of teaching experience.

Methods: The teachers were equally divided into matched experimental and control groups. The experimental subjects received weekly consultation by three psychiatrists in groups of four or five. If they requested it, the control subjects received traditional consultation from a school psychologist. The Ottawa School Behavior Checklist and the Canadian Cognitive Abilities Test were given at the beginning and at the end of the school year to all children in all classes. A 3-year follow-up will compare rates of extrusion into special education classes for the children in experimental and control classrooms.

Findings: Preliminary results based on pilot data indicate a significant reduction in deviant behavior for children in experimental classrooms.

Duration: September 1971-August 1974.

Cooperating group(s): Wentworth County Board of Education, Ontario, Canada; Laidlaw Foundation, Toronto, Canada.

31-OB-2 THE NATURE AND INCIDENCE OF REFERRAL PROBLEMS OF SCHOOL CHILDREN AS RECEIVED BY SCHOOL PSYCHOLOGISTS

Investigator(s): L. Stanley Wenck, Ed.D., Associate Professor, Department of Educational Psychology, Ball State University, Muncie, Indiana 47306.

Purpose: To determine the most common referral problems of school children which are received by school psychologists in Indiana, in order to develop remedial and referral procedures.

Subjects: 50 certified school psychologists from geographically representative areas of Indiana who regularly see school children in an assessment and consultative capacity.

Methods: A structured 30-minute interview was conducted with each subject. Most questions dealt with the nature and incidence of problems for which school children are referred by teachers and parents. Responses were tabulated and ranked in decreasing order of frequency.

Findings: The most common referral problems in decreasing order of frequency were (1) disruptive behavior problems, (2) academic underachievement, (3) intellectual assessment, (4) suspected emotional problems, and (5) grade placement recommendations.

Duration: November 1971-May 1972.

Publications: Results are available from the investigator.

31-OE-1 A MODEL FOR PREVENTION: A KINDERGARTEN SCREENING PROGRAM

Investigator(s): Susan Berger, Ed.D., School Psychologist; and Evelyn Perlman, M.A., School Psychologist, Psychological Counseling Department, Arlington School System, 23 Maple Street, Arlington, Massachusetts 02174.

Purpose: To assess the readiness and to identify emotional, speech, health, and perceptual problems of kindergarten children; and where possible, to get early help for these children and their families.

Subjects: Approximately 500 children entering kindergarten at several schools in Arlington, Massachusetts.

Methods: Two questionnaires have been designed: a parent questionnaire, which examines family background and parental perceptions of the entering child; and a child questionnaire, which is task oriented and requires the interviewer to note impressions. Two evaluation-assessment forms have been designed. The kindergarten teacher's blind impressions at two intervals during the year are being used to validate the instruments used.

Duration: Spring 1969-continuing.

31-OE-2 SOME PARAMETERS OF A SELECTED FREE CHOICE SITUATION AND RELATIONSHIP TO MOVES MADE BY CHILDREN

Investigator(s): Maxine Schoggen, B.A., Research Associate, Demonstration and Research Center for Early Education, George Peabody College for Teachers, Nashville, Tennessee 37203.

Purpose: To establish a method for examining a child's specific behavior in relation to characteristics of the environment in which the behavior occurred.

Subjects: Children in a Head Start classroom.

Methods: Selected free choice situations in a preschool were observed, and the moves children made from activity to acitivity were plotted. The characteristics of the total situation were described in specific terms: number of activities, number of niches, amount of time profitably spent in all activities, number of children, and the total free choice time available. Multiple regression equations were used in a full model, nonpsychological model, and ecological-psychological model.

Findings: In the one classroom studied, both nonpsychological and ecological-psychological variables predicted the number of moves the children made better than chance. Prediction was increased substantially, but not significantly, by the full model.

Duration: April 1972-December 1972.

31-OF-1 EFFECTIVENESS OF THE RELATIVE POSITION OF ORGANIZERS IN TEACHING STRUCTURED MATERIAL IN ANTHROPOLOGY

Investigator(s): M. J. Rice, Ed.D., Professor; Elmer Clawson, Research Assistant; and Buckley Barnes, Research Assistant, Department of Social Science Education, University of Georgia, 107 Dudley Hall, Athens, Georgia 30601.

Purpose: To determine if advance-organizers (AO) or postorganizers (PO) have a facilitating effect on elementary school children's learning new, cognitively and conceptually oriented materials. (An "organizer" is defined as written material that serves the function of facilitating the incorporation and retention of subject matter. The organizer provides a brief summary of the more detailed material contained in the learning passage and relates particular content to the learner's existing knowledge.)

Subjects: 360 grade 3 and 360 grade 6 students, whose sex and race was proportionate to the distribution in the Chatham-Savannah, Georgia School District.

Methods: Half the children used advance organizers and half the children used postorganizers. An investigator-constructed achievement test was administered to both groups as a posttest. A t-test was used to test the difference in means of AO and PO groups, using the class mean as the unit of analysis. The third grade content of *The Changing World Today: Japan, India, Kenya* and the sixth grade content of *Cultural Heritage and Cultural Change: Mexico and the United States* were field tested.

Duration: Spring 1971-spring 1972.

Cooperating group(s): Chatham-Savannah Public School District; El Paso Independent School District; Southeast Regional Research Bureau, U. S. Department of Health, Education, and Welfare.

31-OF-2 INTERACTION OF ACHIEVEMENT LEVEL AND REINFORCING PROPERTIES OF DAILY GRADING SYSTEMS

Investigator(s): Richard A. Brown, Ph.D., Director, Training in Clinical Psychology; J. Epstein, M.A.; and A. Fang, M.A., University Affliliated Program, Children's Hospital of Los

Angeles, 4614 West Sunset Boulevard, Los Angeles, California 90027.
Purpose: To determine the effects that positive and negative grading procedures have on daily school work.
Subjects: 300 boys and girls in grades 7 and 8 in junior high school mathematics classes.
Methods: Comparisons were made between children who received positive feedback and those who received negative feedback on 5-minute addition drills.
Findings: No differences were found among positive, negative, and no feedback groups, and sex or grade differences were not found. An interaction effect was found, in that low achievers responded to positive feedback better than high achievers and better than under the negative or no feedback conditions.
Duration: Winter 1971-continuing.
Cooperating group(s): Institute for Juvenile Research, Chicago; Division of Research, Maternal and Child Health Service, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-OF-3 MOTIVATION TO ACHIEVE IN SCHOOL AND RESPONSIBILITY FOR INTELLECTUAL ACHIEVEMENTS IN THIRD GRADE URBAN BLACK CHILDREN

Investigator(s): Patrick R. Lane, Ph.D., Educational Psychologist, Maimonides Community Mental Health Center, 920 48th Street, Brooklyn, New York 11219.
Purpose: To determine the relationship between Black children's motivation to achieve in school and their academic achievement, perception of personal control, and personal control over their intellectual achievements.
Subjects: 250 urban Black children, age 8, of lower socioeconomic status, equally divided by sex, residing in the Bedford Stuyvesant section of Brooklyn, New York.
Methods: Multiple regression techniques were used to correlate the children's performance on self-concept and achievement motivation measures.
Findings: Black boys who are motivated to achieve are more goal-directed than girls, while Black girls who are motivated to achieve are more likely to have positive affect towards school.
Duration: September 1971-November 1972.
Cooperating group(s): New York City Board of Education.

31-OF-4 INVESTIGATION INTO THE EFFECTS OF THE ALLOCATION OF INSTRUCTIONAL TIME ON PUPIL ACHIEVEMENT AND RETENTION

Investigator(s): Dallas F. Albers, Ed.D., ESEA Title III Project Director, Cape Girardeau Public Schools, 205 Caruthers, Cape Girardeau, Missouri 63701.
Purpose: To determine if academic achievement and its retention are affected by scheduling high school geometry and biology pupils in 110-minute class periods for 90 days instead of 55-minute class periods for 180 days.
Subjects: 192 high school students in grades 9, 10, and 11, enrolled in biology and/or geometry classes.
Methods: A quasi-experimental design will be used which involves pretesting, experimental treatment, and posttesting of the experimental groups, and pretesting and posttesting of the control groups. Pretesting identified the students' entry achievement levels and established the pretreatment achievement equivalence of matched classes. Posttesting determined the cognitive learning achievement in each course. Pupils were follow-up tested for retention of achievement 8 months after the completion of research classes. Data were analyzed by analysis of variance and covariance.

Findings: The experimental and control pupils in both the biology and geometry classes did not significantly differ on either cognitive learning achievement or on retention of what they learned. The characteristics of the teacher were found to make a difference in the extent to which the students prefer the long-block-of-time class period over the traditional class period. The pupils found the long-period classes to be equally satisfactory for both biology and geometry classes. Some pupils lost their preference for the long-period classes after they became more accustomed to them, but most pupils continued to favor them over the traditional class periods. Pupils were generally found to perfer the long-period classes because they felt they improved and enhanced their learning opportunites, while some pupils felt that the extended period of daily concentration characteristic of the long-period classes caused them to lose interest in the subject.

Duration: August 1970-February 1972.

Cooperating group(s): Office of Education, U. S. Department of Health, Education, and Welfare.

31-OG-1 PRIMARY MENTAL HEALTH PROJECT

Investigator(s): Emory L. Cohen, Ph.D., Professor, Department of Psychology, University of Rochester, Rochester, New York 14627.

Purpose: To detect and prevent school maladaption early in the child's life.

Subjects: Approximately 4,000 children in primary grades, including subsamples of maladaptive children, from various socioeconomic backgrounds; 13 school mental health professionals; and 56 nonprofessional child aides.

Methods: Approximately 35 to 40 project studies are in progress at any one time. Data are collected by various methods, including evaluation studies, progress studies, aide selection studies, and long-term follow-up studies. Data analysis includes analyses of variance and covariance, t-tests, and nonparametric factor analyses.

Duration: September 1969-continuing.

Cooperating group(s): Rochester City School District; National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare; New York State Urban Education; Monroe County Youth Board.

Publications: A complete list of publications produced since the project's inception is available from the investigator. The following recent publications are included in that list: Cowen, E. L. On broadening community mental health practicum training for clinical psychologists. *Professional Psychology*, 1971, 2, 159-168; Cowen, E. L.; Dorr, D.; and Pokracki, F. Selection of nonprofessional child-aides for a school mental health project. *Community Mental Health Journal*, 1972, 8; Rappaport, J.; Chinsky, J. M.; and Cowen, E. L. *Institution and innovation: College students and chronic patients*. New York: Academic Press, 1972.

31-OG-2 CLASSROOM OBSERVATION OF CHILDREN WITH SCHOOL PROBLEMS

Investigator(s): Steven R. Forness, Ed.D., Associate Professor, Department of Psychiatry, University of California at Los Angeles, 760 Westwood Plaza, Los Angeles, California 90024.

Purpose: To determine if differences exist in observable classroom behavior between children with school problems and their peers in the same classroom in regular grades.

Subjects: 24 boys, ages 6 to 8, who are referred to a psychiatric outpatient clinic because of significant problems in school learning and/or behavior.

Methods: The boys are observed in the classroom over a 6-day period. Their behavior is coded in eight categories under three conditions: teacher response to behavior, peer response, and no response. Male peers who are observed at alternate intervals serve as controls. Observer reliability was found to be .86 to .97.
Findings: Preliminary findings indicate significant differences for combined categories of appropriate classroom behavior.
Duration: September 1970-September 1972.
Cooperating group(s): California State Department of Education; Special Education Research Center, University of California at Los Angeles.
Publications: Results are available from: Special Education Research Center, Graduate School of Education, University of California at Los Angeles, Los Angeles, California 90024.

31-OG-3 THE EFFECTS OF GROUP FEEDBACK AND GROUP CONTINGENCIES ON THE BEHAVIOR OF FIFTH GRADERS

Investigator(s): Richard A. Winett, Ph.D., Assistant Professor, Department of Psychology, University of Kentucky, Lexington, Kentucky 40506.
Purpose: To evaluate the effects of feedback and contingency procedures as applied to an entire class of children, and to demonstrate the feasibility of using behavior modification procedures in a more open setting.
Subjects: Children in grade 5.
Methods: A sequential design was used in one class, and an intervention class was compared to a nontreated class conducted by the same teacher. A sample of children was observed from each class and rated on a six-category classification. Additional data included observations on the teacher's behavior, including teacher-child interactions.
Findings: Both the feedback and the contingency procedures were found to significantly improve behavior in the experimental class while the control class remained the same. The group procedures improved the behavior of all the individual children sampled.
Duration: February 1972-June 1972.
Cooperating group(s): Fayette County Schools, Kentucky.

31-OG-4 ALIENATION COMMITTEE REPORT

Investigator(s): Orvis Harrelson, M.D., M.P.H., Chairman, Alienation Committee; and Leonard W. Holden, Ed.D., Research Coordinator, Tacoma Public Schools, P. O. Box 1357, Tacoma, Washington 98401.
Purpose: To define alienation (or disenchantment) and attempt to identify individuals who are most alienated as well as factors that produce alienation among junior high school youths in the school setting.
Subjects: 7,393 predominantly white students, ages 11 to 17, approximately equally divided by sex. The students attend 10 junior high schools in Tacoma, Washington.
Methods: The students were administered a 50-item questionnaire with two bipolar type 5-point scales and three open ended questions. The questions were concerned with how the students felt about school. Sample frequencies were determined and percentages derived.
Findings: Twenty to 30 percent of the students indicated varying degrees of alienation, with over age American Indian youths appearing most alienated. Boys were found to be more alienated than girls.
Duration: Fall 1970-May 1972.
Publications: Copies of the final report are available from the investigators.

31-OH-1 STUDENTS' PERCEPTIONS OF TEACHERS' EXPECTATIONS: A PARTIAL TEST OF THE SELF-FULFILLING PROPHECY

Investigator(s): Wayne L. Larson, Ph.D., Associate Professor; and Jack Gilchrist, Ph.D., Assistant Professor, Department of Sociology, Montana State University, Bozeman, Montana 59715.

Purpose: To determine the effect of students' perceptions of teachers' expectations on their educational aspirations and expectations, controlling for the effects of attributes or properties of parents, friends, and schools in which Indian students are enrolled.

Subjects: 451 male and female high school students, grades 9 through 12, Indian and non-Indian, residing in rural Montana.

Methods: Data were collected by questionnaire in schools which varied in size, type (public or private), percent of Indian student enrollment, and dropout rate for Indian students. Path analysis techniques will be used to determine the effects of students' perceptions of teachers' expectations on students' educational aspirations and expectations.

Findings: Preliminary results indicate that parents' expectations and interest, friends' attitudes, and behavior in school are associated with students' aspirations and expectations. These factors will be held constant in the analysis of teachers' expectations and students' aspirations.

Duration: Winter 1969-fall 1976.

Cooperating group(s): Agricultural Experiment Station, College of Agriculture, Montana State University.

31-OH-2 EDUCATIONAL AND OCCUPATIONAL STATUS PROJECTIONS OF LOWER SOCIAL STRATA PREADOLESCENTS: A FOCUS ON SOME INTERVENING SOCIAL PSYCHOLOGICAL VARIABLES

Investigator(s): A. W. Baird, M.A., Acting Director; and Richard R. Butler, M.A., Assistant Sociologist, Social Science Research Center, Mississippi State University, P. O. Box 5287, State College, Mississippi 39762.

Purpose: To describe children's educational and occupational status projections and the mother's status projections for her child; and to examine the relative influence of demographic, structural, socioeconomic, social psychological, and behavioral variables on the child's status projections.

Subjects: 1,412 mother-child pairs. The children are urban Black, rural Black, and rural white boys and girls in grades 5 and 6, from lower socioeconomic groups in seven southeastern states.

Methods: Purposive-quota samples were collected through a sample survey of disadvantaged schools. The 20 independent variables were analyzed through correlation and regression analyses and path models.

Findings: Status projections were found to be *idealistically* high (e.g., professional, college). The mother's childrearing behavior (loving, punishing, demanding), self-concept, and academic motivation constitute the path to educational projections. The mother's status projections were the primary path to occupational projections. No racial or residential differences were found, but there were differences according to the child's sex.

Duration: 1968-1972.

Cooperating group(s): Agricultural Experiment Stations of Alabama, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia; Southern Regional Research Project, U. S. Department of Agriculture.

31-OJ-1 A PARENT EDUCATION PROGRAM IN THE PEDIATRIC CLINIC

Investigator(s): Anne G. Morris, B.S., Project Director, Pediatric Clinic, Mount Sinai School of Medicine, Fifth Avenue and 100th Street, New York, New York 10029; and Joseph Glick, Ph.D., Associate Professor, Department of Developmental Psychology, City University of New York, New York, New York 10021.

Purpose: To demonstrate the feasibility of using the pediatric clinic/well baby station playroom as a base for an early intervention program in which the mother is trained to be the primary agent in carrying out an educational program in the home.

Subjects: 450 boys and girls, ages 20 to 40 months, approximately 40 percent Black and 60 percent Puerto Rican, from low income families.

Methods: The differences in performance of children whose parents took part in the program will be compared to those who received no training. The effects of the program on parent-child interactions before and after the training will be studied. Participating parents will be asked to provide demographic information and respond to attitudinal measures. The children will be administered the Cattell Infant Intelligence Scale. The training and control groups will be selected on a random basis. Twelve training sessions are carried out bimonthly in a one-to-one situation. The methods which are used and the materials which are provided are then used daily with the child at home. There will be continued testing of cohorts at stated intervals. Nontraditional ways of testing and evaluation will be worked out with a small subsample of children.

Findings: Approximately 44 percent of the parents who started the program at Bellevue Hospital (1968-1969) completed it. At Mount Sinai Hospital (1969-1970) there were similar results with a comparable population. Reliable improvement was observed for the training group on the composite performance measured by the Developmental Screening instrument. Performance on the Sequin Form Board (a perceptual-motor measure) was significantly different for the two groups (.05).

Duration: 1968-1976.

Cooperating group(s): Office of Child Development, U. S. Department of Health, Education, and Welfare; National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: Morris, A. G. and Reuben, R. N. A training program in language and motor skills for culturally-deprived children. *Clinical Pediatrics*, 1970, 9(3).

Specific Skills

31-PA-1 MATHEMATICAL PROBLEM SOLVING

Investigator(s): Joseph M. Scandura, Ph.D., Associate Professor, Graduate School of Education, University of Pennsylvania, Philadelphia, Pennsylvania 19104; and John Durnin, Ph.D., Assistant Professor, School of Education, Villanova University, Villanova, Pennsylvania 19085.

Purpose: To determine why some children succeed and some children fail to solve problems for which they have all the necessary component skills (lower order rules).

Subjects: 18 elementary school children.

Methods: Each child was taught a number of rules for trading different kinds of objects, two of which were such that the output of the first could serve as the input of the second. The children were then asked to solve a problem which required for its solution the use of a composite rule (using output as input) without instructions. Those children (15) not able to

solve the composite problem were divided into two groups. One group was trained on the higher order rules (combining lower order rules to get new rules). New rules of new composite problems were then presented to the children.

Findings: Children will almost invariably solve a problem when given the lower order rules relevant to an unfamiliar problem. Children without prior knowledge or training on higher order rules uniformly failed.

Duration: 1971-completed.

Cooperating group(s): Mathematics Education Research Group, University of Pennsylvania; National Science Foundation.

Publications: Scandura, J. M. *Mathematics and structural learning*. New York: Gordon & Breach (in press); Scandura, J. M. *Mathematical problem solving* (Structural Learning Series, Report 66). Philadelphia: University of Pennsylvania, 1972.

31-PA-2 THE ORDER OF ABSTRACTION AND GENERALIZATION IN LEARNING MATHEMATICAL STRUCTURES

Investigator(s): John D. Williams, Ph.D., Research Professor; Z. P. Dienes, Ph.D., Research Professor; and B. Connes, Ph.D., Research Professor, Centre de Recherches en Psycho-Mathematique, Universite de Sherbrooke, Sherbrooke, Quebec, Canada.

Purpose: To determine which of two procedures is superior in learning related concepts: (1) the learner experiences one concept through a variety of exemplars before experiencing another, or (2) the learner experiences all related concepts through one exemplar before experiencing them through another.

Subjects: 120 boys and girls, ages 8 to 9.

Methods: A 2 X 2 X 2 factorial design was employed: abstraction before generalization versus generalization before abstraction; difficult exemplar first versus simple exemplar first; complex structure first versus simple structure first. Pre- and posttest data were analyzed by analysis of covariance.

Duration: July 1971-October 1972.

Cooperating group(s): International Study Group for Mathematics Learning.

31-PB-1 EVALUATION OF VISUAL PERCEPTUAL FACTORS IN READING DISABILITY

Investigator(s): Herman K. Goldberg, M.D., Associate Professor, Department of Ophthalmology, Johns Hopkins Hospital, Baltimore, Maryland 21201.

Purpose: To relate visual sequential memory and visual memory to reading in normal and disabled readers.

Subects: 81 normal readers: mean age, 8.55; mean IQ, 98.27; with grade level 2.55 reading ability; and 43 disabled readers with IQs of 80 or higher, and with reading disabilities 2 or more years behind their chronological age.

Methods: The tests of visual memory administered to all subjects included the Benton Visual Retention Test and the Visual Sequential Memory Test of the Illinois Test of Psycholinguistic Abilities (ITPA). Other tests included the Knox Cube Test and the ITPA Visual Closure Subtest. The reading tests administered to the subjects included the Gray Oral Test, the Metropolitan Reading Achievement Test (administered only to the disabled readers), and the Wide Range Achievement Test.

Findings: The tests of visual sequential ability and visual memory were significantly correlated with several measures of reading. The Benton Visual Retention Test showed more of the partial

correlations with reading than did all of the other tests combined. Significant positive associations were identified between visual sequential memory and paragraph comprehension, oral reading, and word recognition.

Duration: July 1970-September 1971.

Publications: Goldberg, H. K. and Guthrie, J. T. Evaluation of visual perceptual factors in reading disability. *Journal of Pediatric Ophthalmology*, 1972, 9(1), 18-25.

31-PB-2 READING ACQUISITION SUBSKILLS OF NORMAL CHILDREN AND CHILDREN WITH COMMUNICATION DISORDERS

Investigator(s): D. G. Doehring, Ph.D., Professor, School of Human Communication Disorders, Department of Otolaryngology, and Department of Psychology, McGill University, Beatty Hall, 1266 Pine Avenue West, Montreal 261, Quebec, Canada.

Purpose: To make reliable descriptions of the hierarchies of subskills involved in reading acquisition by children with communication disorders (speech, language, hearing), and to compare these with normal children.

Subjects: 36 children: two above average, two average, and two below average readers in each of grades 1, 2, 3, 4, 6, and 8 in English-speaking schools in Montreal. The children in each pair will be from different schools.

Methods: A set of skills directly related to reading has been devised, and additional nonreading perceptual skills may be assessed in later modifications of the test. The test stimuli will consist of pictures, letters, nonsense syllables, words, sentences, and paragraphs carefully graded in difficulty and presented in written form. The children respond by speaking, writing, typing, or choosing among alternatives. Responses are analyzed for accuracy, speed, and exact type of confusion involved in the incorrect responses. Speed and accuracy of response and types of errors will be analyzed to determine the course of development of hierarchies of subskills. After these results are analyzed, tests will be prepared and administered to similar samples of children.

Duration: September 1972-continuing.

Cooperating group(s): Medical Research Council of Canada.

31-PB-3 DEVELOPMENTAL PATTERNS IN ELEMENTAL READING SKILLS

Investigator(s): R. G. Stennett, Ph.D., Chief, Educational Research Services; and P. C. Smythe, Ph.D., Research Associate, London Board of Education, P. O. Box 5873, London 12, Ontario, Canada; Madeline I. Hardy, Ed.D., Professor; and H. R. Wilson, Ph.D., Associate Professor, Althouse College of Education, University of Western Ontario, London, Ontario, Canada.

Purpose: To isolate, measure, and study the normal development of several of the elementary skills which children must acquire if they are to learn to read.

Subjects: Various samples of 30 to 130 kindergarten and grade 1 children.

Methods: Standard statistical techniques will be used for test construction, preparation of norm tables, and data analysis. Special use will be made of factor analysis and various forms of profile analysis to isolate patterns of skill development and their changes over time.

Duration: June 1970-December 1975.

Cooperating group(s): National Research Council of Canada.

Publications: Stennett, R. G.; Smythe, P. C.; Hardy, M.; and Wilson, H. R. *Developmental patterns of elemental reading skills: Upper-case lower-case equivalences*. London, Ontario: Board

of Education, 1971 (Mimeographed); Stennett, R. G.; Smythe, P. C.; and Hardy, M. Language background, guessing, mastery, and type of error in beginning reading. *Alberta Journal of Educational Research*, 1972 (in press); Hardy, M. Fads and fallacies surrounding beginning reading skills. *The English Quarterly*, 1972 (in press); Stennett, R. G.; Smythe, P. C.; Pinkney, J.; and Fairbairn, A. The relationship of eye movement measures to psychomotor skills and other elemental skills involved in learning to read. *Journal of Reading Behavior*, 1972 (in press); Hardy, M.; Stennett, R. G.; and Smythe, P. C. Word attack: How do they "figure them out?" *Elementary English*, 1972 (in press).

31-PB-4 CHARACTERISTICS OF BEGINNING READERS

Investigator(s): Coleman Morrison, Ph.D., Professor; and Marciene Mattleman, Ed.D., Associate Professor, Department of English Education, Temple University, 253 Ritter Hall, Philadelphia, Pennsylvania 19122; and L. M. Furst, Ph.D., Associate Professor, Department of Education, Villanova University, Villanova, Pennsylvania 19085.
Purpose: To determine whether there are relationships between selected pupil characteristics and initial reading achievement.
Subjects: Approximately 120 boys and girls in grade 1, half from inner city and half from suburban schools.
Methods: The children were pretested on measures of personality, creativity, auditory and visual propensity, IQ, and reading potential. Each of four classrooms used a different reading approach. Children were tested for achievement at the end of one school year to determine correlations among variables.
Duration: September 1971-January 1973.

31-PB-5 AN EXPLORATORY STUDY OF CERTAIN LEISURE TIME ACTIVITIES OF HIGH SOCIOECONOMIC PARENTS IN RELATION TO THEIR CHILD'S READING ACHIEVEMENT

Investigator(s): Concetta C. Wilson, Ed.D., Coordinator of Reading, Newport News Public Schools, Laboratory Center for Reading, 225 River Road, Newport News, Virginia 23601.
Purpose: To investigate the relationship between the reading habits of upper-middle class parents and the reading achievement of their children; to explore the pattern of relationships among the parents' reports of their participation in four areas (television viewing, reading, community activities, leisure time activities); and to examine parents' perceptions of how their children participated in the same activities.
Subjects: 114 randomly selected high socioeconomic status parents who responded to a mailed questionnaire; and their children in grades 5 and 6.
Methods: The children were ranked according to their tested reading level (Science Research Achievement), and a median split determined the high and low readers. A principal component factor analysis technique was used to analyze the questionnaire. A t-test was used to compare the mean factor scores of the 22 highest readers with the mean factor scores of the 22 lowest readers. The 20 lowest readers were matched by IQ with 20 high readers. A t-test was used to determine the significance of the difference between means of the factor scores for these matched pairs. The component variables of the only significant factor were individually examined for differences between these groups.
Findings: A significant difference was found in the perceived amount of reading that children do. Good readers are seen by their parents as doing more reading in general, for pleasure,

and more reading of fiction and nonfiction. The distinct patterns of family life style which emerged from a factor analysis of the questionnaire items do not relate to children's perceived disposition to read little, avidly, or selectively, and are unrelated to the children's reading achievement.

Duration: 1970-completed.

31-PC-1 AN ACTIVITY RESOURCE GUIDE FOR GRADE 9 SLOW LEARNERS BASED UPON BEHAVIORAL OBJECTIVES

Investigator(s): J. E. Culver, Ed D., District Science Coordinator, M. DaRos, M.Ed., Specialist for Slow Learners; R. Horutz, B.S., Science Teacher; and R. Keller, M.A., Science Teacher, Upper Darby School District, Drexel Hill Junior High School, State Road and Pennsylvania Avenue, Drexel Hill, Pennsylvania 19026.

Purpose: To improve the learning of science for slow learning pupils.

Subjects: Approximately 300 boys and girls, ages 14 to 16, many of whom have emotional problems and reading disabilities.

Methods: A study will be conducted of (1) science literature; (2) nationwide research on slow learners; and (3) textbook publications for slow learners, particularly in the science area. An analysis of individual and small group student activities will be made. Data will be pooled from two large junior high schools for evaluation of the program.

Findings: Results indicate a great improvement in the school science program. Revisions are indicated to simplify some procedures in some cases for the very slow learner.

Duration: June 1971-continuing.

Cooperating group(s): Delaware County Vocational-Technical Schools.

Publications: Copies of research reports are available from the investigator.

31-PD-1 A VALIDATION OF THE KUCERA/FRANCIS 220 HIGHEST FREQUENCY WORDS AS A SIGHT WORD TEST

Investigator(s): Victor Froese, Assistant Professor, Department of Education, University of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2; and Alan Neal, River East School Division No. 9, Winnipeg, Manitoba, Canada.

Purpose: To compare subjects' responses on the Kucera/Francis 220 highest frequency words to their responses on the Dolch 220 basic sight vocabulary (Basic Sight Word Test, 1942).

Subjects: 155 second graders and 179 third graders (170 girls, 164 boys) from randomly selected classrooms in four schools in a large suburban school division in Winnipeg, Manitoba, Canada. 118 subjects had high IQs; 151, middle IQs; and 66, low IQs. 181 subjects were from upper SES families, and 154 subjects were from lower SES families.

Methods: A test similar in format to the Dolch Test was constructed from the Kucera/Francis Test, and both tests were administered in random order within a 2-week period. Otis-Alpha IQ scores were available, and Botel's Word Opposites Test was administered 5 months later as a reading comprehension measure. Results were analyzed by means of t-tests and product-moment correlations.

Findings: Significant differences on both tests were found between grades and between middle and lower IQ levels. Differences between SES levels and between sexes were not significant. Means on the two tests for the total group were also significantly different. Both IQ and Botel scores correlated higher with the Dolch 220 Test than with the Kucera/Francis 220 words. The

intercorrelation of the two tests was .85. It was concluded that the Dolch 220 words are still usable and are possibly a better predictor of reading success than the Kucera/Francis Test.
Duration: November 1971-April 1972.
Cooperating group(s): University of Manitoba Research Board.

Special Education

31-QC-1 COMMUNITY BEHAVIOR MODIFICATION PROGRAM

Investigator(s): Luke S. Watson, Jr., Ph.D., Director, Education and Research, Columbus State Institute, 1601 West Broad Street, Columbus, Ohio 43223.
Purpose: To develop exact programming for teaching parents to teach their retarded, autistic, emotionally disturbed children; and eventually to place the children in appropriate community facilities.
Subjects: Mentally retarded, autistic, and emotionally disturbed children, ages 2 to 10, whose parents are willing to participate in a home training program in which they act as therapists or teachers.
Methods: Data collection consists of recording performance made in a variety of training programs, including self-help skills, language skills, social recreation skills, and educational skills. The frequency of desirable and undesirable responses will be recorded and compared with the training procedures used.
Findings: Parents can be successful trainers, and it seems essential that specific programs should be developed to teach children specific skills. These programs should be clear enough to enable the parents to carry them out.
Duration: September 1971-June 1975.

31-QE-1 ALL DAY KINDERGARTEN

Investigator(s): Ronald H. Nieman, M.S., Evaluator, Division of Program Research and Design, Cincinnati Public Schools, 230 East Ninth Street, Cincinnati, Ohio 45202.
Purpose: To increase learning readiness in culturally disadvantaged children, and to study the effects of an all day kindergarten (ADK) program on these children.
Subjects: 500 disadvantaged boys and girls, age 5, eligible under Title I.
Methods: The most educationally needy children are given priority for the treatment group; other children are assigned to control groups. The Boehm Test of Basic Concepts is administered by classroom teachers on a pre- and posttest basis. The Metropolitan Reading Readiness Test is used as a posttest. The Sullivan Reading Program is used in most of the classrooms studied. The data were analyzed through a one-way analysis of variance.
Findings: The ADK group has consistently tested higher on midyear tests and posttests. In some schools, ADK classes have scored nearly twice as high as their half day counterparts on the Metropolitan Reading Readiness Test.
Duration: September 1968-continuing.
Publications: Copies of the *Journal of Program Research and Development*, published by Cincinnati Public Schools, are available to qualified persons or agencies upon request from the investigator.

-QE-2 EXPERIMENTAL VARIATION OF HEAD START CURRICULA: A COMPARISON OF CURRENT APPROACHES

Investigator(s): Louise B. Miller, Ph.D., Professor, Department of Psychology, University of Louisville, Belknap Campus, Louisville, Kentucky 40208.
Purpose: To explore the effects of specific treatment variables (program components) in a prekindergarten setting in order to determine their immediate and long-term impact on cognitive, motivational, perceptual, and achievement variables.
Subjects: 213 Head Start children, age 4: 116 females and 97 males.
Methods: The children will be studied from prekindergarten to grade 2. Four Head Start programs will be investigated: Bereiter-Engelmann, DARCEE, Montessori, and Traditional. Two types of kindergartens will be studied: a regular program and a token economy program. Program dimensions will be monitored in the classroom and videotapes will be used. Cognitive, motivational, social, and achievement variables will be assessed. Data analysis will focus on the nature of programs, the effects of intact programs, and relations between specific dimensions of programs and effects on children.
Findings: Four prekindergarten programs were found to differ in several dimensions (e.g., modeling, reinforcement). Bereiter-Engelmann and DARCEE programs were higher in cognitive measures collected at the end of Head Start. Bereiter-Engelmann and control groups were found to be below national norms in achievement measures collected at the end of grade 1, while all other groups were above national norms. Results also suggested different effects from various sequences of prekindergarten and kindergarten programs.
Duration: Fall 1968-October 1972.
Cooperating group(s): Office of Economic Opportunity; Public Health Service, U. S. Department of Health, Education, and Welfare.

31-QE-3 *EDUCATION OF CHILDREN AGED ONE TO THREE: A CURRICULUM MANUAL*

Investigator(s): Paul Hanly Furfey, Ph.D., Research Associate, Bureau of Social Research, Catholic University of America, Washington, D. C. 20017.
Purpose: To determine the effectiveness of various methods of teaching disadvantaged children.
Subjects: 30 ghetto infants who were visited 5 days a week by staff members from the time they were 14 months of age to the time they were 36 months, and then, less frequently to age 6.
Methods: Staff members experimented with various methods of stimulating the infants' motor and sensory skills. Trips, games, puzzles, music, art, books, sorting activities, and other techniques were employed.
Duration: September 1965-completed.
Publications: Furfey, P. H. (Ed.) *Education of children aged one to three: A curriculum manual.* Washington, D. C.: Catholic University of America, Curriculum Development Center, 1972.

31-QH-1 CAREERS IN INTEGRATED EARLY CHILDHOOD PROGRAMS

Investigator(s): Molly C. Gorelick, Ed.D., Associate Professor; Marjory L. Joseph, Ph.D., Professor; and Ruth Silberstein, Clinical Director, Preschool Laboratory, Department of Home Economics, San Fernando Valley State College, 18111 Nordhoff Street, Northridge, California 91324.

Purpose: To design programs which lead to careers in early childhood settings that integrate normal and handicapped children, and to assess attitudes towards the integrated approach.
Subjects: Young people exploring career opportunities, students enrolled in undergraduate university courses, students enrolled in early childhood programs, and parents of children enrolled in a newly integrated preschool laboratory.
Methods: Twelve children with handicaps (including mental retardation, blindness, deafness, mild cerebral palsy, and developmental lags) were integrated with 52 normal children enrolled in a preschool laboratory. All children are ages 3 to 5. A questionnaire was devised to establish baseline attitudes of college students and parents of normal preschool children towards the integrated program. The questionnaire was administered at the beginning and at the end of a school semester. Training for careers in the integrated program was initiated with the selection of eight developmental assistant teachers. Daily and weekly staff meetings, special demonstrations, workshops, lectures, and site visitations were conducted as part of the training program.
Findings: Meetings and discussion groups with parents of normal and handicapped children have resulted in allaying fears concerning the integration. None of the parents of the normal children withdrew their children from the integrated program. Results of the questionnaire survey indicate that the university students have positive attitudes towards the inclusion of handicapped children in learning situations with the normal children. The majority were opposed to segregation of handicapped students through institutionalization. They believed that handicaps were more often a *chance* occurrence, and they indicated a positive attitude towards the retardate or handicapped in most instances. There was evidence of a feeling of personal rejection and tragedy towards the retardate that was evident at both pre- and posttest periods. Some respondents still have negative attitudes towards handicapped and retarded children.
Duration: September 1971-June 1976.
Cooperating group(s): Bureau of Mental Retardation, Social and Rehabilitation Service, U.S. Department of Health, Education, and Welfare.

31-QH-2 FACILITATING THE INTEGRATION OF HEARING IMPAIRED CHILDREN INTO REGULAR PUBLIC SCHOOL CLASSES

Investigator(s): Grant B. Bitter, Ed.D., Project Director; Kay Johnston, M.Ed., Project Coordinator; and Edwin G. Mears, B.S., Project Specialist, Project NEED, Department of Special Education, University of Utah, 223-A, Milton Bennion Hall, Salt Lake City, Utah 84112.
Purpose: To design and produce a series of inservice lessons for regular teachers and volunteer tutors, and to help the untrained professional and paraprofessional deal more successfully with hearing impaired children.
Subjects: Deaf students, hearing peers, parents, and teachers of regular classes located in the Salt Lake City, Ogden, and Provo areas of Utah.
Methods: A quesionnaire has been developed to collect data on the existing strategies used to integrate deaf children into regular classes.
Duration: September 1971-August 1974.
Cooperating group(s): Rocky Mountain Regional Resource Center; Department of Speech Pathology and Audiology, University of Utah; Alexander Graham Bell Association for the Deaf; Salt Lake City, Weber, Ogden, and Provo area school districts; Utah School for the Deaf.
Publications: Materials are available from the investigators.

31-QH-3 ACHIEVEMENT OF HARD OF HEARING STUDENTS IN REGULAR PUBLIC SCHOOLS

Investigator(s): M. Kathleen Peterson, Ph.D., Director, Audiology and Hearing Services, Child Development Center, Norristown, Pennsylvania. Address correspondence to: John H. Gaeth, Chairman, Department of Audiology, Wayne State University, 261 Mack Boulevard, Detroit, Michigan 48201.

Purpose: To investigate the achievement level of hard of hearing children placed in regular classrooms.

Subjects: 60 hard of hearing children of normal intelligence, in grades 4 and 6, who remained in the same school with normally hearing children.

Methods: The children's scores on the Iowa Test of Basic Skills were compared with the average score for the classroom in which they were placed and with the national norms for the test. The 15 highest and 15 lowest scorers on the test were given retests, personal interviews, and tests of lipreading and listening ability.

Findings: The hard of hearing children scored significantly below their classmates and significantly below the national norms. Personal interviews with the children suggested that they had adjustment problems as isolated hard of hearing children in a school where all other children had normal hearing. They often spoke of themselves as "loners." They reported that other students talked about them behind their backs, and they felt that they were often laughed at because of their poor speech. This seemed to be a main factor in their general apathy towards wearing hearing aids.

Duration: September 1969-May 1972.

Cooperating group(s): Speech and Hearing Department and Department of Research, Detroit Public Schools.

SOCIAL SERVICES

31-RB-1 STUDY OF SOCIAL SERVICE NEEDS AND ACCESSIBILITY IN THE DETROIT LATINO COMMUNITY

Investigator(s): Charles N. Lebeaux, Ph.D., Professor, School of Social Work; and Gumicindo Salas, M.A., Assistant Professor, Monteith College, Wayne State University, Detroit, Michigan 48202.

Purpose: To study the social service needs and their accessibility in the Detroit Latino Community.

Subjects: Agencies serving the Latino Community of Detroit; and a sample of Latino households in the community.

Methods: The data collected on each of the agencies include (1) the types of service they provide, (2) the numbers and percent of Latino clientele, (3) special efforts they make to reach the Latino Community, (4) the participation of Latinos in committees and on policy boards, and (5) the employment of Latinos by the agency. Home interviews will be conducted to determine the families' use, knowledge, and blockages to social service. Comparisons will be made of the total Latino population and their social characteristics on the basis of previous census data.

Duration: July 1972-August 1973.

Cooperating group(s): Computer Center, Wayne State University; Latin American Secretariat, Detroit Archdiocese; Latin Americans for Social and Economic Development.

31-RE-1 EVALUATION OF HEALTH SERVICES FOR FOSTER CHILDREN

Investigator(s): Florence Kavaler, M.D., M.P.H., Assistant Commissioner for Evaluation and Institutional Review; Donna O'Hare, M.D., Assistant Commissioner for Maternal and Child Health Services; and Peggy Swire, M.A., Project Director, Foster Care Health Evaluation Study, New York City Department of Health, 125 Worth Street, New York, New York 10013.

Purpose: To evaluate the prevailing health delivery systems for foster children in boarding homes in New York City.

Subjects: 500 foster children living in boarding homes in New York City.

Methods: An interview field survey was made of medical programs in 14 agencies. Direct pediatric, dental, and mental health examinations of the children were conducted by qualified professionals. Medical records of the children will be reviewed. Personal interviews with foster mothers will be conducted to determine their attitudes towards agency programs and their own health habits and needs.

Findings: Little or no uniformity was found among the voluntary agencies studied in terms of the structure and staffing of their health programs. Marked variation was found in the relative emphasis placed upon medical, dental, and mental health components of the agencies' overall programs. Per capita variation in total cost for health services and in the cost of component services (e.g., medical, dental, mental health) was so marked as to raise serious questions as to the health needs of these foster children and the extent to which their needs are being met.

Duration: May 1971-April 1974.

Cooperating group(s): Department of Social Services, New York City Human Resources Administration; Division of Research, Maternal and Child Health Service, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-RE-2 FOSTER CARE STUDY: PREDICTING PLACEMENT OUTCOMES

Investigator(s): Susan Poulos, M.S.W., Research Coordinator, Children's Aid Society of Vancouver, Vancouver, British Columbia, Canada.
Purpose: To develop and test a *risk* typology based on two child characteristics (age and symptom of emotional disturbance) which would be predictive of foster home placement outcome, and to examine the extent to which foster home placement outcome is associated with selected foster parent characteristics.
Subjects: A random sample of 165 children, ages 1 to 19, placed in foster home care.
Methods: Data were collected on the child and foster parents at the time of placement. After a 6-month period, follow-up data were collected, which included three separate interviews with foster parents. Data were analyzed by discriminant analysis.
Findings: The child *risk* typology has proved to be a good predictor of placement outcome. For the period of time studied, foster parent characteristics appear to have little relationship to placement outcome.
Duration: January 1970-fall 1972.
Cooperating group(s): Welfare Grants Division, Department of National Health and Welfare, Canada.

31-RF-1 DAY CARE IN VERMONT

Investigator(s): Eileen Siedman, M.A., Director, Special Evaluation Projects, Leadership Institute for Community Development, 2021 L Street, N.W., Washington, D. C. 20036.
Purpose: To evaluate the Vermont Model Family Assistance Plan (FAP) Child Care Service System.
Subjects: The Vermont Model FAP Child Care Service System that serves children, ages 0 to 15, who live in Vermont and are eligible for day care under proposed Family Assistance Plan legislation.
Methods: Investigators traced the development of the Vermont FAP Child Care Service System from the evolution of policies through their implementation at the state and local levels. Phase I descriptively evaluated all aspects of the planning process as they reflected on (1) the development of the administrative system, (2) the preparatory arrangements by federal and state staffs for transfer of operational responsibility and funding to the local level, and (3) the development of the day care delivery system. Phase II focused on the administrative implementation of the Vermont day care system. Data were obtained from legal documents which imposed requirements, correspondence, memoranda, guidelines, contracts, minutes of meetings, records, reports, newspaper articles, and other written materials. Personal interviews were conducted with 260 people throughout Vermont who had a direct relationship with the operating system.
Findings: Deficiencies in planning and administrative implementation of the statewide day care system were traced to four major problem areas: information, decision making, quality control, and use of resources.
Duration: July 1971-June 1972.
Cooperating group(s): Research and Evaluation, Children's Bureau, Office of Child Development, U. S. Department of Health, Education, and Welfare.

31-RF-2 A DESCRIPTIVE STUDY OF GROUP CARE ARRANGEMENTS FOR SCHOOL AGE CHILDREN

Investigator(s): Elizabeth Prescott, M.A., Director of Research; and Elizabeth Jones, Ph.D., Director of Graduate Studies, Pacific Oaks College, 714 West California Boulevard, Pasadena, California 91105.
Purpose: To describe group programs that offer day care to school age children, to identify critical variables that predict differences in the programs, and to develop a method for assessing the quality of the programs.
Subjects: 25 day care centers that offer a variety of programs with a clientele from various ethnic and socioeconomic backgrounds.
Methods: Twenty-five centers that offer year-round programs will be selected to provide a cross-section of socioeconomic level and ethnicity of clientele and basic program types. A minimum of 10 centers will be revisited during school vacation. Ten centers which offer summer programs only will be selected. Interviews and structured observation will provide information on regulatory agencies, clientele, organizational characteristics, physical facilities, staffing characteristics, and programs offered by the centers.
Duration: November 1972-October 1973.

31-RF-3 A COMPARATIVE STUDY OF CHILDREN IN DAY CARE FACILITIES AND NON-DAY CARE

Investigator(s): Richard A. Winett, Ph.D., Assistant Professor, Department of Psychology, University of Kentucky, Lexington, Kentucky 40506.
Purpose: To ascertain the effects of day care on the role relationships of the family.
Subjects: Children who have been in day care for at least 1 year; and children not in day care. The children are age 4 and from various socioeconomic backgrounds.
Methods: Social, affective, and cognitive measures will be obtained through testing, interviews, and observations.
Duration: September 1972-September 1973.
Cooperating group(s): Day care centers in Lexington, Kentucky.

31-RI-1 CHILD CARE AND WORK TRAINING PROGRAMS

Investigator(s): Audrey D. Smith, Ph.D., Assistant Professor, School of Social Service Administration, University of Chicago, 969 East 60th Street, Chicago, Illinois 60637.
Purpose: To study the child care arrangements used by welfare mothers participating in work training programs.
Subjects: 318 mothers, ages 17 to 59, who are on Aid to Families with Dependent Children (ADC) and have been referred to the Work Incentive Program (WIN); and 400 boys and girls, ages 1 to 13, who are in child care arrangements.
Methods: The mothers were interviewed after being referred to WIN by their welfare case workers. Eight to 10 months later, 261 of the mothers were interviewed again. Structured interview schedules were used. Social workers and students of social work conducted the interviews. Frequencies, cross-tabulations, correlations, and multiple regression techniques were used.
Findings: Most mothers preferred and used in-home care for their children (i.e., relatives and babysitters) and most were quite satisfied with their arrangements. Unsatisfactory arrangements

were primarily self-care and care by siblings of children under 13 years of age. Child care centers and care by fathers and other relatives were the most satisfactory arrangements.

Duration: August 1969-June 1972.

Cooperating group(s): School of Social Work, Case Western Reserve University; School of Social Work, University of Michigan.

Publications: Copies of the report are available from the investigator.

HEALTH SERVICES

31-SA-1 EVALUATION OF EXPERIENCES WITH THE USE OF THE HEALTH EDUCATION CURRICULUM GUIDE, *HEALTHY, THAT'S ME*

Investigator(s): Richard B. Zamoff, Ed.D., Research Staff, The Urban Institute, 2100 M Street, N.W., Washington, D. C. 20037.

Purpose: To obtain feedback on Head Start experienc with the health education curriculum guide, *Healthy, That's Me*.

Subjects: 317 Head Start teachers, 100 teacher trainees, 53 Head Start directors, and 11 regional office staff members.

Methods: Data were collected primarily by means of telephone interviews, supplemented by site visits to teacher training sessions, and by meetings with Head Start parents. Interviews were conducted with Head Start staff members who are using the curriculum guide, and with a similar group who are not using the guide. Data were analyzed descriptively for discussion purposes.

Findings: The curriculum guide was implemented less than had been planned. Reactions to the guide were generally favorable with important suggestions for revisions and for strengthening teacher training.

Duration: November 1971-July 1973.

Cooperating group(s): Office of Child Development, U. S. Department of Health, Education, and Welfare.

Publications: Zamoff, R. B. and Regan, K. J. *Evaluation of experiences with the use of the health education curriculum guide, Healthy, That's Me*. Urban Institute Working Paper 961-2-1. Washington, D. C.: The Urban Institute.

31-SA-2 CYCLIC CORRELATION: AIR, BLOOD LEAD, AND RED CELL METABOLISM

Investigator(s): Carol R. Angle, M.D., Professor; and Matilda S. McIntire, M.D., Associate Professor, Department of Pediatrics, Medical Center, University of Nebraska, Omaha, Nebraska 58105.

Purpose: To define the locus and the significance of the inhibitory effect of urban blood lead levels on activity on glucose-6-phosphate dehydrogenase (G-6-PD) in the red cells of the enzyme deficient subject; and to correlate the cyclic changes in blood lead noted in urban school populations with atmospheric lead.

Subjects: Urban Black school children, ages 5 to 19.

Methods: A mass screening was made of 3,400 children for microhematocrit and G-6-PD. One hundred and sixty-six children will be tested for G-6-PD activity, blood lead, and hematologic indices, with a repeat test on 108 of these children.

Findings: A correlation was found of blood lead with the lead emission source. Blood lead, after standardization for hematocrit and red cell lead, increased in G-6-PD deficient, independent of location.

Duration: September 1969-August 1974.

Cooperating group(s): Environmental Protection Agency; National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-SA-3 EVALUATION OF THE CHILD HEALTH ASSOCIATE AND HIS IMPACT ON THE DELIVERY OF HEALTH CARE TO CHILDREN

Investigator(s): John E. Ott, M.D., Acting Director; and Pavel Machotka, Ph.D., Child Associate Program, Medical Center, University of Colorado, Box 2662, 4200 East Ninth Avenue, Denver, Colorado 80220.

Purpose: To evaluate the child health associate and his impact on the delivery of health care to children.

Subjects: Health professional students, medical students, and pediatric house officers.

Methods: As graduates of the child health associate program move into practice settings, cost effectiveness ratios and their impact on the delivery of health care to children will be studied. An attempt will be made to determine what predictive factors can be used in choosing child health associates. Child health associate students, medical students, and pediatric house officers took nine basic science examinations. Their scores were compared and their knowledge and clinical competence were assessed.

Findings: The child associates received higher scores than either comparison group on most tests. The pediatric residents received higher scores than the medical students on most tests, suggesting that the material tested was basic or pertinent to the practice of pediatrics. The findings suggest that the child health associates' knowledge of pertinent basic science and clinical pediatrics is at least adequate for practice.

Duration: 1969-1975.

Cooperating group(s): Carnegie Corporation, New York; The Commonwealth Fund; National Center for Health Services Research and Development, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare; National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

Publications: *Competence of child health associates: Comparison of basic science and clinical pediatric knowledge with that of medical students and pediatric residents*, a 5-page paper, is available from the investigators.

31-SA-4 ANALYSIS OF CHILDREN RADIATED IN FETAL LIFE

Investigator(s): Melvin L. Griem, M.D., Professor, Department of Radiology, University of Chicago, 950 East 59th Street, Chicago, Illinois 60637.

Purpose: To study children who in 1948 were prenatally and postnatally exposed to radiation in a routine diagnostic pelvimetry program.

Subjects: 3,024 children: 1,008 firstborn children who received an X-ray exposure dose of between 1.5 and 3 rads *in utero* during a routine pelvimetry program at the Chicago Lying-In Hospital in 1948; and two control groups of 1,008 children each, one group born beofore and one group born after the routine pelvimetry program was effected.

Methods: Between 1962 and 1965, the parents of the children in each group were surveyed for the incidence of illness, number of hospitalizations, and surgical procedures of the children. In 1966, 2,774 children were actually contacted by mail or telephone. Data from a questionnaire, together with information obtained from the patient's physician, the child's hospital chart, autopsy reports, X-ray exposure data, and the mother's history including the prenatal record were carefully recorded. Other hospitals furnished information concerning hospitalizations and operative procedures on these children. The history of the mother's health during pregnancy, of ingestion of drugs, and of hereditary diseases of the family was recorded. A computer program was designed to search for the incidence and number of cases of a specific disease in each of the three groups studied.

Findings: The results of the survey indicated an increase in benign hemangiomas, but not in congenital malformations, eye diseases, or malignant neoplasms. No significant increase in either leukemia or malignant tumors was found among the radiated children. The mental status and other detailed analyses of the children are currently being conducted.

Duration: 1962-continuing.

Cooperating group(s): American Cancer Society; National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare; Biology and Medicine Division, U. S. Atomic Energy Commission.

31-SA-5 EMERGING PATTERNS OF HEALTH SERVICES FOR YOUNG PEOPLE

Investigator(s): Charles E. Lewis, M.D., Professor and Head, Division of Health Administration, School of Public Health, University of California at Los Angeles, Los Angeles, California 90024.

Purpose: To study the factors which determine and influence health and illness behavior in children and young adults.

Subjects: Boys and girls, ages 3 to 12, from all socioeconomic strata.

Methods: The project will focus on the socialization process by which a young adult becomes a *health care consumer*. The studies will be conducted in settings where it is possible to study the effects of active participation in new or emerging patterns of health services for this segment of the population (i.e., in child-initiated pediatric services, in youth clinics, and in college health service agencies).

Duration: June 1971-continuing.

Cooperating group(s): National Center for Health Services Research and Development, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare; University Elementary School, University of California at Los Angeles.

31-SB-1 THE ROLES OF PHYSICIAN, PARENT, AND PARAPROFESSIONAL WORKER IN COMPREHENSIVE RURAL INTERVENTION PROGRAMS

Investigator(s): Judith P. Archambo, Ph.D., Assistant Professor, Department of Behavioral Science, Medical Center, University of Kentucky, Lexington, Kentucky 40506.

Purpose: To determine the structure, practices, and attitudes associated with professional, paraprofessional, and parent participation in the health service aspects of a rural Head Start program.

Subjects: Phase I: 183 children, ages 4 to 6, and their families. Phase II: 10 physicians, 80 parents, and 40 paraprofessional staff members.

Methods: In the first phase of the study, case history records of the children were examined to determine the incidence of health problems and the extent to which the program identified and followed through in treating the problems. In Phase II, interviews were conducted with physicians, workers, and parents to determine the nature of their participation in planning and follow-through and the aspects of health problems in which they diverge when they describe each other's roles.

Duration: July 1971-August 1972.

Publications: Copies of the final report are available from the investigator.

31-SB-2 RESPIRATORY DISEASE IN GROUP DAY CARE

Investigator(s): Frank Loda, M.D., Assistant Professor; and Albert Collier, M.D., Assistant Professor, Frank Porter Graham Child Development Center, Highway 54, Chapel Hill, North Carolina 27514; W. P. Glezen, M.D., Associate Professor; and Floyd Denny, M.D., Professor, Department of Pediatrics, School of Medicine, University of North Carolina, Chapel Hill, North Carolina 27514.

Purpose: To evaluate the importance and etiology of respiratory disease in group day care; to develop effective prophylactic or therapeutic procedures for respiratory illness; to study the development of immunity in young children; and to study microbial interaction (synergistic or antagonistic) among viruses, bacteria, and mycoplasma.

Subjects: 30 to 40 children, ages 0 to 5, equally represented by sex and socioeconomic status.

Methods: Daily observations are made of the children's illnesses with careful recording of illness occurrence and severity. Cultures for viruses, bacteria, and mycoplasma are made whenever the children are ill and at selected times when they are well. Serum samples are collected for antibody determination every 6 months. Trial of respiratory virus vaccines are made as they become available.

Findings: Excessive illness does not occur in well-regulated group day care settings. Respiratory syncytial (RS) virus and the parainfluenza viruses are major respiratory pathogens in day care. Patterns of seasonal virus occurrence, age incidence, and illness patterns in day care are similar to those in the general community. Recurrent infections with RS virus and parainfluenza virus type 3 occur despite prior natural infection.

Duration: June 1966-continuing.

Cooperating group(s): National Institute of Allergy and Infectious Diseases, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare; National Institute of Child Health and Human Development, National Institutes of Health, U. S. Department of Health, Education, and Welfare.

31-SD-1 EARLY DETECTION OF CHILDREN AT RISK FOR IRON DEFICIENCY

Investigator(s): Amos Deinard, M.D., Assistant Professor, Department of Pediatrics, University of Minnesota Hospitals, Minneapolis, Minnesota 55455.

Purpose: To correlate maternal iron status at or near term with the offspring's subsequent iron status at 9 months of age to predict possible future iron deficiency; to determine what effect maternal iron deficiency has on the birthweight of the offspring; and to develop a noninvasive technique for estimating iron stores through measurement of iron content of hair.

Subjects: Approximately 350 women and their offspring.

Methods: Data will be collected on the women at the time of their first prenatal clinic visit, at term, on the child at birth (cord blood), at their first clinic visit (4 to 6 weeks), and at their 6- and 9-month clinic visits. Data will include hematocrit, hemoglobin, red cell morphology, serum iron, percent transferrin saturation, and iron content of a small hair sample. Iron content of hair will be measured by atomic absorption spectrophotometry. Other measurements will be made by standard techniques.

Duration: June 1972-June 1974.

Cooperating group(s): Division of Research, Maternal and Child Health Service, Health Services and Mental Health Administration, Public Health Service, U. S. Department of Health, Education, and Welfare.

31-SD-2 OXFORD SURVEY OF CHILDHOOD CANCERS

Investigator(s): Alice M. Stewart, M.D., F.R.C.P., Reader, Department of Social Medicine, University of Oxford, 8 Keble Road, Oxford OX1 3QN, England.

Purpose: To discover the nature of any factor that influences the frequency of childhood cancers.

Subjects: All children who died from malignant diseases in Britain since January 1953; and an equal number of healthy controls picked at random from birth registers.

Methods: Data were collected by Medical Officers of Health in interviews with parents and from hospital and clinic records.

Findings: There is a small carcinogenic hazard associated with prenatal irradiation that is probably exhausted by the age of 15 years. There is a strong negative correlation between leukemia and infection that is largely responsible for the recent increase in the number of leukemia deaths (i.e., more children are surviving to the end of the latent period since the discovery of antibiotics).

Duration: 1955-1975.

Publications: Kneale, G. W. Problems arising in estimating from retrospective survey data the latent periods of juvenile cancers initiated by obstetric radiography. *Biometrics*, 1971, 27, 563; Stewart, A. M. Tissue ageing as a factor in juvenile cancers. *Proceedings of the Royal Society of Medicine*, 1972, 65, 245; Stewart, A. M. Epidemiology of acute (and chronic) leukemias. In S. Roath (Ed.), *Clinics in haematology*. London: W. B. Saunders, 1972.

INSTITUTION INDEX

Alabama University, Birmingham. Institute of Dental Research. 31-CF-1
American Institutes of Research, Palo Alto, California. 31-EB-1, 31-EB-2
Antioch College, Columbia, Maryland. Department of Psychology. 31-AA-1
Arkansas University, Fayetteville. College of Business Administration; Department of Agricultural Economics. 31-NB-3
Arlington School System, Arlington, Massachusetts. Psychological Counseling Department. 31-OE-1
Auckland University, Auckland, New Zealand. School of Medicine, Department of Psychiatry. 31-JH-1

Ball State University, Muncie, Indiana. Department of Educational Psychology. 31-OB-2
Brigham Young University, Provo, Utah. Department of Sociology. 31-MB-4
Brown University, Providence, Rhode Island. Institute of Life Sciences. 31-AA-13

Calgary University, Calgary, Alberta, Canada. Department of Educational Psychology. 31-FE-1
California University, Berkeley. Department of Rhetoric. 31-DH-1
California University, Berkeley. Institute of Human Development. 31-AA-4
California University, Berkeley. Institute of Human Learning; Department of Educational Psychology. 31-DD-2
California University, Berkeley. School of Public Health. 31-AA-3
California University, Los Angeles. Department of Linguistics. 31-DH-6
California University, Los Angeles. Department of Psychology. 31-LF-1
California University, Los Angeles. School of Medicine, Department of Psychiatry. 31-FA-5, 31-FB-1, 31-FB-3, 31-OG-2
California University, Los Angeles. School of Medicine, Division of Child Development, Department of Pediatrics. 31-BA-2
California University, Los Angeles. School of Public Health, Division of Health Administration. 31-SA-5
California University, Riverside. Department of Sociology. 31-FA-2
Cape Girardeau Public Schools, Cape Girardeau, Missouri. 31-OF-4
Case Western Reserve University, Cleveland, Ohio. School of Medicine. 31-AA-7
Catholic University of America, Washington, D. C. Bureau of Social Research. 31-QE-3
Central Wisconsin Colony and Training School, Madison. Behavioral Science Research Department. 31-HH-3
Centre National de Recherches Scientifiques, Paris, France. Laboratoire de Psychologie. 31-DH-3
Chicago University, Illinois. Department of Radiology. 31-SA-4
Chicago University, Illinois. School of Social Service Administration. 31-RI-1
Child Development Center, Norristown, Pennsylvania. Audiology and Hearing Services. 31-QH-3
Children's Aid Society, Vancouver, British Columbia, Canada. 31-RE-2
Children's Bureau (DHEW), Washington, D. C. Youth and Child Studies Branch. 31-AA-10
Children's Health Council, Palo Alto, California 31-HE-1
Children's Hospital of the District of Columbia, Washington, D. C. Program for Learning Studies. 31-HH-2
Children's Hospital of Los Angeles, California. 31-DH-6

Children's Hospital of Los Angeles, California. Department of Clinical Psychology, University Affiliated Program. 31-OF-2
Children's Hospital of Los Angeles, California. Division of Child Development. 31-HF-1
Children's Hospital, Winnipeg, Manitoba, Canada. Department of Genetics. 31-GD-1
Cincinnati University, Ohio. Department of Special Education. 31-GC-3
Cincinnati Public Schools, Ohio. Division of Program Research and Design. 31-QE-1
City University of New York, New York. Department of Psychology. 31-ED-2
City University of New York, New York. Queen's College. 31-JB-1
Clarke Institute of Psychiatry, Toronto, Ontario, Canada. 31-HC-4, 31-HC-5
Clarke School for the Deaf, Northampton, Massachusetts. 31-GC-2
Colorado University, Denver. Medical Center. 31-EF-1
Colorado University, Denver. Medical Center, Child Health Associate Program. 31-SA-3
Colorado University, Denver. Medical School, Department of Biophysics and Genetics. 31-GD-2
Columbia University, New York, New York. School of Public Health, Department of Epidemiology. 31-JA-1
Columbia University, New York, New York. Teachers College, Department of Psychology. 31-DH-8
Columbus State Institute, Columbus, Ohio. 31-HC-6, 31-QC-1
Connecticut University, Storrs. Department of Child Development and Family Relations. 31-MB-2
Convalescent Hospital for Children, Rochester, New York. 31-JI-1
Coppin State College, Baltimore, Maryland. Department of Social and Vocational Rehabilitation Counseling. 31-HH-4

Denver University, Colorado. Department of Psychology. 31-EG-1
Drexel Hill Junior High School, Drexel Hill, Pennsylvania. Upper Darby School District. 31-PC-1
Duke University, Durham, North Carolina. Medical Center, Department of Psychiatry. 31-FA-1

Education Commission of the States, Denver, Colorado. National Assessment of Educational Programs. 31-OA-3

Fels Research Institute for the Study of Human Development, Yellow Springs, Ohio. 31-AA-1
Florida A & M University, Tallahassee. School of Education. 31-DF-2
Florida State University, Tallahassee. Department of Educational Research. 31-DF-2
Forsyth Dental Center, Boston, Massachusetts. Department of Orthodontics. 31-CF-2
Fort Wayne State Hospital and Training Center, Indiana. Biochemistry Department. 31-HF-2
Fuller Graduate School of Psychology, Pasadena, California. Child Development Center. 31-JC-1

Gallaudet College, Washington, D. C. Office of Demographic Studies. 31-GA-1
George Peabody College for Teachers, Nashville, Tennessee. Demonstration and Research Center for Early Education. 31-OE-2
George Peabody College for Teachers, Nashville, Tennessee. Department of Special Education. 31-FA-7
Georgia State University, Atlanta. Department of Psychology. 31-MC-3
Georgia University, Athens. Department of Social Science Education. 31-OF-1
Goodwill Industries, Inc., Miami, Florida. 31-HC-1

Harvard University, Boston, Massachusetts. School of Public Health. 31-AA-2
Harvard University, Cambridge, Massachusetts. Department of Education. 31-HH-1

Harvard University, Cambridge, Massachusetts. Graduate School of Education, Laboratory of Human Development, The Harvard Preschool Project. 31-AA-18
Hope College, Holland, Michigan. Department of Psychology. 31-CH-1

Illinois University, Chicago. Center for Craniofacial Anomalies. 31-AA-9
Illinois University, Urbana. Department of Psychology. 31-DC-2 31-MA-1, 31-MB-1
Indiana University, Bloomington. School of Medicine, Child Psychiatry Services. 31-DD-3
Iowa State University, Ames. Department of Psychology. 31-KR-1
Iowa University, Iowa City. College of Dentistry, Department of Pedodontics. 31-CF-3

Johns Hopkins Hospital, Baltimore, Maryland. Department of Ophthalmology. 31-PB-1
Johns Hopkins University, Baltimore, Maryland. Center for the Study of Social Organization of Schools. 31-FA-9
Johns Hopkins University, Baltimore, Maryland. Department of Psychology. 31-FA-4, 31-IA-1

Kaiser Foundation Hospital, Oakland, California. Department of Pediatrics. 31-AA-3
Kansas University, Kansas City. Medical Center, Kansas Center for Mental Retardation. 31-GC-1
Kansas University, Lawrence. Bureau of Child Research. 31-DH-5
Kansas University, Lawrence. Department of Human Development. 31-BA-3
Kansas University, Lawrence. Kansas Center for Research in Early Childhood Education. 31-ED-1
Kansas University, Lawrence. School of Education. 31-DF-1
Kentucky University, Lexington. Department of Psychology. 31-FA-8, 31-OA-4, 31-OG-3, 31-RF-3
Kentucky University, Lexington. Medical Center, Department of Behavioral Science. 31-SB-1

Leadership Institute for Community Development, Washington, D. C. 31-RF-1
Lethbridge University, Lethbridge, Alberta, Canada. Department of Psychology. 31-FA-6
Lethbridge University, Lethbridge, Alberta, Canada. Faculty of Education. 31-DC-4
London Board of Education, London, Ontario, Canada. Educational Research Services. 31-PB-3
Long Island Jewish-Hillside Medical Center, Glen Oaks, New York. Child Development Clinic, Department of Evaluation. 31-JH-2
Louisiana State University, Baton Rouge, Department of Psychology. 31-FA-3
Louisiana State University, New Orleans. Medical Center, Department of Otorhinolaryngology. 31-CC-1
Louisville University, Kentucky. Department of Psychology. 31-QE-2
Lynwood Unified School District, Lynwood, California. 31-EB-4

Macquarie University, North Ryde, New South Wales, Australia. Department of Psychology. 31-JE-1
Maimonides Community Mental Health Center, Brooklyn, New York. 31-OF-3
Manhattanville College, New York, New York. Department of Psychology. 31-ED-2
Manitoba University, Winnipeg, Manitoba, Canada. Department of Education. 31-PD-1
Marquette University, Milwaukee, Wisconsin. Department of Psychology. 31-DD-1
Massachusetts Institute of Technology, Cambridge. Department of Nutrition and Food Science. 31-CE-2
Massachusetts Institute of Technology, Cambridge. Research Laboratory of Electronics, Speech Communication Group. 31-AA-17

McGill University, Montreal, Quebec, Canada. Department of Psychology. 31-CH-2
McGill University, Montreal, Quebec, Canada. School of Human Communication Disorders; Department of Otolaryngology; Department of Psychology. 31-PB-2
McMaster University, Hamilton, Ontario, Canada. Department of Psychiatry. 31-KK-1, 31-OB-1
Michigan University, Ann Arbor. School of Social Work. 31-KP-1, 31-MB-3
Minnesota University, Minneapolis. Child Development Study. 31-AA-20
Minnesota University, Minneapolis. Division of Speech Pathology; Department of Child Development; Department of Pediatric Neurology. 31-DC-3
Minnesota University, Minneapolis. Research, Development, and Demonstration Center in Education of Handicapped Children. 31-DH-9
Minnesota University, St. Paul. Department of Sociology. 31-NB-1
Minnesota University Hospitals, Minneapolis. Department of Pediatrics. 31-SD-1
Mississippi State University, State College, Mississippi. Social Science Research Center. 31-OH-2
Missouri University, St. Louis. Extension Division; Department of Sociology. 31-KC-1
Missouri University, St. Louis. School of Medicine; Missouri Institute of Psychiatry. 31-JF-1, 31-JF-2
Montana State University, Bozeman. Department of Sociology. 31-OH-1
Montreal Children's Hospital, Montreal, Quebec, Canada. Department of Medical Genetics. 31-LG-1
Montreal Children's Hospital, Montreal, Quebec, Canada. Department of Psychology. 31-JC-2
Mount Sinai School of Medicine, New York, New York. Pediatric Clinic. 31-OJ-1

National Center for Health Statistics (DHEW), Washington, D. C. 31-AA-7
National Information on Volunteerism, Boulder, Colorado. 31-KD-2
National Institute of Child Health and Human Development (DHEW), Bethesda, Maryland. 31-AA-7
National Institute of Mental Health (DHEW), Bethesda, Maryland. Adult Psychiatry Branch, Section on Twin and Sibling Studies. 31-AA-15
National Institute of Mental Health (DHEW), Bethesda, Maryland: Section Personality and Environment. 31-NG-1
National Institute of Neurological Diseases and Stroke (DHEW), Bethesda, Maryland. 31-AA-14
National Institute of Science and Technology, Herran, Manila, Philippines. National Science Development Board, Food and Nutrition Center. 31-CE-1
Nebraska University, Lincoln. College of Medicine, Department of Pediatrics. 31-CA-3, 31-CA-4
Nebraska University, Omaha. Medical Center, Department of Pediatrics. 31-SA-2
Newport News Public Schools, Virginia. Laboratory Center for Reading. 31-PB-5
New York City Department of Health, New York. 31-RE-1
New York City University, New York. Department of Developmental Psychology. 31-OJ-1
New York City University, New York. Department of Developmental Psychology, Harlem Research Center. 31-DC-5
New York City University, New York. Hunter College, Department of Education. 31-BA-4
New York State University, Albany. Department of Educational Psychology. 31-EB-3
New York State University, Brooklyn. Downstate Medical Center, College of Medicine. 31-CE-3
New York State University, Brooklyn. Downstate Medical Center, College of Medicine, Department of Environmental Medicine and Community Health. 31-CE-4
New York State University, Stony Brook. Department of Psychology. 31-DC-1
New York State University College, Oswego. Department of Psychology. 31-FA-10, 31-MC-2
New York University, New York. Institute for Developmental Studies. 31-OA-2

North Carolina University, Chapel Hill. Department of Anthropology. 31-FA-11
North Carolina University, Chapel Hill. Department of Psychology. 31-IA-2
North Carolina University, Chapel Hill. Frank Porter Graham Child Development Center; School of Medicine; Department of Pediatrics. 31-SB-2
Northern Iowa University, Cedar Falls. Department of Educational Psychology and Foundations. 31-MC-1
Notre Dame University, Notre Dame, Indiana. Department of Psychology. 31-HC-3

Oklahoma University, Oklahoma City. Health Sciences Center. 31-DB-2
Oregon University, Portland. Dental School. 31-AA-6
Oxford University, Oxford, England. Department of Social Medicine. 31-SD-2

Pacific Oaks College, Pasadena, California. 31-RF-2
Pennsylvania University, Philadelphia. Graduate School of Education. 31-PA-1
Pennsylvania University, Philadelphia. Philadelphia Center for Craniofacial Biology. 31-AA-11
Pennsylvania University, Philadelphia. Philadelphia Center for Research in Child Growth. 31-AA-11
Pittsburgh Child Guidance Center, Pennsylvania. Laboratory of Psychophysiology; Laboratory of Interactional Behavior. 31-LF-2
Pittsburgh University, Pennsylvania. Learning Research and Development Center. 31-DG-1
Purdue University, Lafayette, Indiana. Department of Child Development and Family Life. 31-LA-2, 31-LA-3
Purdue University, Lafayette, Indiana. Department of Psychological Sciences. 31-DB-1

Reiss-Davis Child Study Center, Los Angeles, California. 31-AA-21
River East School Division No. 9, Winnipeg, Manitoba, Canada. 31-PD-1
Rochester University, New York. Department of Psychology. 31-JI-1, 31-OG-1
Rochester University, New York. Department of Psychology, Primary Mental Health Project. 31-AA-16
Rome State School, Rome, New York. 31-MC-2
Rosewood State Hospital, Owings Mills, Maryland. 31-HE-2
Royal Berkshire Hospital, Reading, Berkshire, England. 31-CC-2

San Fernando Valley State College, Northridge, California. Department of Home Economics, Preschool Laboratory. 31-QH-1
San Jose State College, California. 31-LA-1
Society of Biological Psychiatry, Los Angeles, California. 31-KD-1
Sonoma County Office of Education, Santa Rosa, California. 31-NB-2
South Carolina University, Columbia. Department of Sociology. 31-LA-4
Southeastern Mental Health Center, Sioux Falls, South Dakota. Children's Unit. 31-JE-2
Southwest Educational Development Laboratory, Austin, Texas. 31-IA-3
Special Experiences in Early Childhood Project, Houston, Texas. 31-LF-3
St. Louis University, Missouri. Department of Psychiatry. 31-JA-2
St. Thomas' Hospital Medical School, London, England. Department of Clinical Epidemiology and Social Medicine. 31-CA-1, 31-CA-2, 31-FC-2
Staten Island Community College, New York. 31-JB-1
Syracuse University, New York. Family Development and Research Program. 31-BA-1

Tacoma Public Schools, Washington. 31-OG-4
Temple University, Philadelphia, Pennsylvania. Department of English Education. 31-PB-4
Temple University, Philadelphia, Pennsylvania. Department of Special Education. 31-DA-1
Temple University, Philadelphia, Pennsylvania. Department of Speech. 31-DH-7
Temple University, Philadelphia, Pennsylvania. School of Medicine. 31-GB-1
Texas Christian University, Fort Worth. Institute of Behavioral Research. 31-LF-4

Texas University, Austin. Center for Communication Research. 31-FE-2
Texas University, Austin. Department of Anthropology. 31-AA-11, 31-AA-12
Texas University, Austin. Department of Linguistics. 31-DH-4
Texas University, El Paso. Department of Linguistics. 31-DH-2
Toronto University, Toronto, Ontario, Canada. Faculty of Social Work. 31-KP-2
Tufts University, Medford, Massachusetts. Lincoln Filene Center. 31-DB-3

Union College, Schenectady, New York. Character Research Project. 31-AA-8
Universidad del Valle de Guatemala, Guatemala City. American School of Guatemala City. 31-AA-12
Universite de Sherbrooke, Sherbrooke, Quebec, Canada. Centre de Recherches en Psycho-Mathematique. 31-PA-2
University College of Swansea, Swansea, Wales, United Kingdom. Department of Education. 31-HC-2
Urban Institute, Washington, D. C. 31-SA-1
Utah University, Salt Lake City. Department of Special Education, Project NEED. 31-QH-2

Vanderbilt University, Nashville, Tennessee. Department of Psychology. 31-AA-19
Veterans Administration Hospital, Oklahoma City, Oklahoma. 31-DB-2
Victoria University, Victoria, B.C., Canada. Faculty of Education. 31-OA-1
Villanova University, Villanova, Pennsylvania. Department of Education. 31-PB-4
Villanova University, Villanova, Pennsylvania. School of Education. 31-PA-1
Virginia State College, Petersburg. Department of Psychology. 31-DE-1
Virginia University Hospital, Charlottesville. School of Medicine. 31-GE-1

Washington University, Seattle. Child Development and Mental Retardation Center. 31-DD-3
Washington University, Seattle. Department of Physical Medicine and Rehabilitation. 31-JD-1
Wayne State University, Detroit, Michigan. School of Social Work; Monteith College. 31-RB-1
Wayne State University, Detroit, Michigan. Speech and Hearing Center. 31-CF-4
Wessex Regional Hospital Board, Winchester, Hampshire, England. 31-HJ-1
Western Ontario University, London, Ontario, Canada. Althouse College of Education. 31-PB-3
Western Ontario University, London, Ontario, Canada. Department of Psychology. 31-CG-1
Wheaton College, Norton, Massachusetts. Department of Psychology. 31-AA-13
Who Cares, Inc., Houston, Texas. 31-FC-1
Wilberforce University, Wilberforce, Ohio. Department of Psychology. 31-EC-2
William Alanson White Institute, New York, New York. Department of Research. 31-EA-1
Wisconsin University, Madison. Department of Sociology. 31-EC-1
Wisconsin University, Madison. Research and Training Center in Mental Retardation, Department of Studies in Behavioral Disabilities. 31-HA-1
Wofford College, Spartanburg, South Carolina. Department of Psychology. 31-EA-2

Yale University, New Haven, Connecticut. Department of Psychology. 31-DC-6
Yeshiva University, New York, New York. Albert Einstein College of Medicine. 31-AA-5
Yeshiva University, New York, New York. Albert Einstein College of Medicine, Research Nursery. 31-FB-2
Yeshiva University, New York, New York. Ferkauf Graduate School, Curriculum Research and Development Center in Mental Retardation. 31-HA-2

INVESTIGATOR INDEX

Achenbach, Thomas 31-DC-6
Ahmann, J. Stanley 31-OA-3
Albers, Dallas F. 31-OF-4
Allen, James 31-FC-1
Alpern, Gerald D. 31-DD-3
Anderson, John A. 31-AA-20
Angle, Carol R. 31-SA-2
Archambo, Judith P. 31-SB-1
Argyres, Nicholas 31-EB-3
Auer, Edward T. 31-JA-2

Baird, A. W. 31-OH-2
Baker, Bruce L. 31-HH-1
Balthazar, Earl E. 31-HH-3
Barnes, Buckley 31-OF-1
Barton, Keith 31-MA-1, 31-MB-1
Baucom, Donald 31-IA-2
Belmont, John M. 31-GC-1
Bench, John 31-CC-2
Berendes, Heinz W. 31-AA-14
Berger, Susan 31-OE-1
Berlin, Charles I. 31-CC-1
Berlin, Harriet L. 31-CC-1
Bernal, Ernest M. Jr. 31-IA-3
Berry, Judith Lake 31-KD-2
Bewley, Beulah R. 31-FC-2
Bielefeld, Martin O. 31-KR-1
Birns, Beverly 31-AA-5
Bitter, Grant B. 31-QH-2
Blunden, R. 31-HJ-1
Boll, Thomas J. 31-DD-3
Bradley, Betty Hunt 31-HC-6
Bridger, Wagner H. 31-AA-5
Brown, Richard A. 31-OF-2
Bunewa, Margaret 31-AA-17
Butler, Richard R. 31-OH-2
Byles, John A. 31-KK-1, 31-OB-1

Callaghan, Dian 31-KD-2
Campbell, Susan B. 31-JC-2
Caputo, Daniel V. 31-JB-1
Carton, Aaron S. 31-DC-1
Cattell, R. B. 31-MA-1, 31-MB-1
Caudill, William 31-NG-1
Cicirelli, Victor G. 31-LA-2, 31-LA-3
Clawson, Elmer 31-OF-1
Clay, A. C. 31-HC-1
Clement, Paul W. 31-JC-1
Coburn, Stephen P. 31-HF-2
Cohen, Donald 31-AA-15
Cohen, Leslie B. 31-DC-2
Collier, Albert 31-SB-2
Connes, B. 31-PA-2
Cooper, Beatrice M. 31-AA-21
Cowen, Emory L. 31-AA-16, 31-OG-1
Cox, William F. Jr. 31-DF-2
Culver, J. E. 31-PC-1

DaRos, M. 31-PC-1
Degroot, J. C. 31-JA-1
Deinard, Amos 31-SD-1
Denny, Floyd 31-SB-2
Dibble, Eleanor 31-AA-15
Dickie, Jane R. 31-CH-1
Dielman, T. E. 31-MA-1, 31-MB-1
Dienes, Z. P. 31-PA-2
DiFrancesca, Sal 31-GA-1
Doehring, D. G. 31-PB-2
Donohue, George 31-NB-1
Dorr, D. A. 31-AA-16
Doust, John W. Lovett 31-HC-4, 31-HC-5
Dravland, V. 31-DC-4
Dreifuss, F. E. 31-GE-1
Dreyer, Albert S. 31-MB-2
Duncan, David F. 31-FC-1
Durnin, John 31-PA-1

Edmunds, Gloria 31-DE-1
Eichorn, Dorothy H. 31-AA-4
Eisenberg, J. G. 31-JA-1
Ekstein, Rudolf 31-AA-21
Elliott, A. 31-FC-2
Ellis, Joanna J. 31-JA-2
Elmer, Elizabeth 31-LF-2
Epstein, J. 31-OF-2
Ervin-Tripp, Susan M. 31-DH-1

Falk, Mervyn L. 31-CF-4
Falkner, Frank 31-AA-1
Fang, A. 31-OF-2
Fautsko, Timothy F. 31-KD-2
Fennell, Valerie 31-FA-11
Fiene, Richard J. 31-DC-1
Finn, Sidney B. 31-CF-1

Fisch, Robert O. 31-AA-20
Fishler, Karol 31-HF-1
Fletcher, Harold J. 31-DF-2
Forness, Steven R. 31-OG-2
Fraser, F. C. 31-LG-1
Friedman, Seymour W. 31-AA-21
Fries, Joseph H. 31-CE-3
Froese, Victor 31-PD-1
Fromkin, Victoria A. 31-DH-6
Fuller, Renee 31-HE-2
Furfey, Paul Hanly 31-QE-3
Furst, L. M. 31-PB-4

Galenson, Eleanor 31-FB-2
Gandy, John M. 31-KP-2
Garber, Howard 31-HA-1
Garvey, Catherine J. 31-FA-4
Gentile, Augustine 31-GA-1
Geurin, Virginia 31-NB-3
Gibbs, Gordon E. 31-CA-3, 31-CA-4
Gilchrist, Jack 31-OH-1
Gittelman, Rachel 31-JH-2
Glezen, W. P. 31-SB-2
Glick, Joseph 31-OJ-1
Goehl, H. 31-DH-7
Goldberg, Herman K. 31-PB-1
Golden, James F. 31-NB-3
Goldstein, Michael J. 31-LF-1
Gorelick, Molly C. 31-QH-1
Gottfried, Nathan W. 31-FA-3
Green, Richard 31-FB-3
Greenbaum, Hilda 31-GC-2
Greenberg, Sandra 31-HA-2
Greenberger, Ellen 31-FA-9
Greene, E. L. 31-JA-1
Greulich, William W. 31-AA-7
Griem, Melvin L. 31-SA-4
Griffin, Guy D. 31-CA-4
Guardo, Carol J. 31-EG-1

Halil, T. 31-CA-1
Hallinan, Maureen T. 31-EC-1
Hamerton, John L. 31-GD-1
Hardy, Madeline I. 31-PB-3
Harper, Juliet 31-JE-1
Harrelson, Orvis 31-OG-4
Heber, Rick 31-HA-1
Heifetz, Louis 31-HH-1
Hepner, Ethel M. 31-EB-4
Herson, J. H. 31-JA-1
Hillman, Robert W. 31-CE-4
Holden, Leonard W. 31-OG-4
Holland, W. W. 31-CA-1, 31-CA-2
31-FC-2
Honigmann, John 31-FA-11
Horowitz, Frances D. 31-BA-3
Horutz, R. 31-PC-1
Hughes, Larry F. 31-CC-1
Hughes, Robert B. 31-JE-2

Iker, Howard P. 31-JI-1
Intengan, Carmen L. 31-CE-1
Itil, Turan M. 31-JF-1, 31-JF-2
Izzo, L. D. 31-AA-16

Jameson, J. 31-JA-1
Jensen, Arthur R. 31-DD-2
Johnston, Francis 31-AA-11, 31-AA-12
Johnston, Kay 31-QH-2
Jones, Elizabeth 31-RF-2
Joseph, Marjory L. 31-QH-1

Kaban, Barbara 31-AA-18
Kavaler, Florence 31-RE-1
Kean, James E. 31-LF-3
Keller, R. 31-PC-1
Kerr, Joyce 31-LF-2
Klein, Donald F. 31-JH-2
Knowles, Don 31-OA-1
Kohn, M. 31-EA-1
Kopp, Claire 31-BA-2
Korzenik, Diana 31-DB-3
Kowalski, Ruth Seltzer 31-DH-8
Kraus, Philip E. 31-BA-4
Krogman, Wilton M. 31-AA-11
Kushlick, Albert 31-HJ-1
Kunz, Phillip R. 31-MB-4

L'Abate, Luciano 31-MC-3
Laing, Alice F. 31-HC-2
Lally, J. Ronald 31-BA-1
Lampard, D. M. 31-DC-4
Landres, Peter 31-AA-21
Lane, Patrick R. 31-OF-3
Langner, T. S. 31-JA-1
Laramore, Darryl 31-NB-2
Larson, Wayne L. 31-OH-1
Lebeaux, Charles N. 31-RB-1
Lewis, Charles E. 31-SA-5
Liebowitz, Joel 31-AA-21
Ligon, Ernest M. 31-AA-8
Loda, Frank 31-SB-2
Lowe-Bell, Sena 31-CC-1

Machotka, Pavel 31-SA-3
MacVean, Robert 31-AA-12
Malina, Robert M. 31-AA-12
Mattleman, Marciene 31-PB-4
McCarthy, E. D. 31-JA-1
McGregor, M. 31-DC-4
McIntire, Matilda S. 31-SA-2
McRae, Susan 31-FE-2
Mears, Edwin G. 31-QH-2
Mehler, Jacques 31-DH-3
Menanteau, Dario 31-NB-1
Mercer, Jane R. 31-FA-2
Miller, A. G. 31-FA-6
Miller, Louise B. 31-QE-2
Mitra, Sudhansu B. 31-HH-4
Moorrees, Coenraad F. A. 31-CF-2
Morris, Anne G. 31-OJ-1
Morrison, Coleman 31-PB-4

Naor, Ellen 31-HH-3
Natalicio, Diana S. 31-DH-2
Natalicio, Luiz F. S. 31-DH-2
Neal, Alan 31-PD-1
Nelson, Arnold E. 31-LF-4
Nieman, Ronald H. 31-QE-1
Novak, David W. 31-FA-1

O'Hare, Donna 31-RE-1
Olien, Clarice 31-NB-1
Ott, John E. 31-SA-3
Ozer, Mark N. 31-HH-2

Palmer, James O. 31-FA-5, 31-FB-1
Parker, Ronald K. 31-DC-5
Parkins, Frederick 31-CF-3
Parmelee, Arthur H. 31-BA-2
Parnes, B. 31-EA-1
Partridge, C. R. 31-HE-1
Pederson, David R. 31-CG-1
Pendergrass, Virginia E. 31-HC-1
Perlman, Evelyn 31-OE-1
Peterson, Evan T. 31-MB-4
Peterson, M. Kathleen 31-QH-3
Pishkin, Vladimir 31-DB-2
Pitman, Ruth 31-KP-2
Pittenger, Owen E. 31-MC-2
Podnieks, Ints 31-HC-4, 31-HC-5
Pollin, William 31-AA-15
Pommer, Dale A. 31-JE-2
Poulos, Susan 31-RE-2
Prescott, Elizabeth 31-RF-2
Prescott, Robin B. 31-GB-1

Pruzansky, Samuel 31-AA-9
Pumphrey, Muriel 31-KC-1
Pyle, S. Idell 31-AA-9

Quereshi, M. Y. 31-DD-1

Rabinovitch, M. Sam 31-CH-2
Radin, Norma 31-MB-3
Ragins, Naomi 31-LF-2
Rasmussen, S. 31-JD-1
Ratzlaff, Allen D. 31-MC-2
Ratzlaff, Nancy S. 31-MC-2
Redfern, J. Martin 31-NB-3
Rice, M. J. 31-OF-1
Ries, Peter 31-GA-1
Rigler, David 31-DH-6
Robinson, Arthur 31-GD-2
Rodda, Michael 31-GC-3
Rodnick, Eliot H. 31-LF-1
Roiphe, Herman 31-FB-2
Roodin, Paul A. 31-FA-10
Rosenblith, Judy F. 31-AA-13
Rosner, Jerome 31-DG-1
Roxas, Benigna V. 31-CE-1
Ruder, Kenneth F. 31-DH-5
Rusch, Reuben R. 31-EB-3

Salas, Gumicindo 31-RB-1
Sand, P. L. 31-JD-1
Sarri, Rosemary C. 31-KP-1
Savara, Bhim S. 31-AA-6
Scandura, Joseph M. 31-PA-1
Schachter, Joseph 31-LF-2
Scheier, Ivan H. 31-KD-2
Schoen, Edgar 31-AA-3
Schoggen, Maxine 31-OE-2
Schwartz, Eugene P. 31-KC-1
Scott, Ralph 31-MC-1
Seay, Bill 31-FA-3
Seegars, James E. Jr. 31-EA-2
Senturia, Audrey G. 31-JA-2
Sexton, B. 31-HJ-1
Siedman, Eileen 31-RF-1
Silberstein, Ruth 31-QH-1
Simpson, William E. 31-FA-10
Singer, Dorothy G. 31-ED-2
Singer, Jerome L. 31-ED-2
Smith, Audrey D. 31-RI-1
Smith, Carlota S. 31-DH-4
Smith, Leon 31-HA-2
Smith, Michael D. 31-DH-5
Smith, Thomas Ewin 31-LA-4

Smythe, P. C. 31-PB-3
Snow, Ellen Munson 31-IA-3
Sonies, Barbara 31-DC-3
Sontag, Lester W. 31-AA-1
Sroufe, Allen 31-DC-3
Stanley, Julian C. 31-IA-1
Stennett, R. G. 31-PB-3
Stephens, Beth 31-DA-1
Stephens, Mark W. 31-DB-1
Stewart, Alice M. 31-SD-2
Strain, Phillip 31-FA-7
Strecker, Margaret 31-KP-2
Sudia, Cecelia 31-AA-10
Swire, Peggy 31-RE-1

Taub, Harvey 31-JB-1
Tennes, Katherine 31-EF-1
Thomas, Stephen 31-AA-3
Thompson, George N. 31-KD-1
Thompson, Jack M. 31-NB-2
Thurlow, Martha L. 31-DH-9
Tolley, Howard Jr. 31-EC-2
Treffinger, Donald J. 31-DF-1
Trehub, Sandra E. 31-CH-2
Trost, M. A. 31-AA-16
Turnure, James E. 31-DH-9

Ulett, George 31-JF-1

Van Wart, Geraldine 31-FE-2
Victor, Jack 31-OA-2
Vinter, Robert D. 31-KP-1

Wade, Serena E. 31-LA-1
Walker, Geoffrey F. 31-AA-11
Watson, Luke S. Jr. 31-QC-1
Watts, Jean 31-AA-18
Wei, S. H. Y. 31-CF-3
Weisgerber, Robert A. 31-EB-1, 31-EB-2
Welsh, George S. 31-IA-2
Wenck, L. Stanley 31-OB-2
Werry, John S. 31-JH-1
West, Lloyd W. 31-FE-1
Whatmore, R. 31-HJ-1
White, Burton L. 31-AA-18
Whitehurst, Keturah 31-DE-1
Whitman, Thomas L. 31-HC-3
Wiegerink, Ronald 31-FA-7
Williams, Frederick 31-FE-2
Williams, John D. 31-PA-2
Williams, Paul 31-HJ-1
Willis, Diane J. 31-DB-2
Willson, Dennis F. 31-HC-3
Wilson, Concetta B. 31-PB-5
Wilson, Geraldine 31-LF-3
Wilson, H. R. 31-PB-3
Winett, Richard A. 31-FA-8, 31-OA-4, 31-OG-3, 31-RF-3
Wolfe, Arthur L. 31-JI-1
Wolff, Don 31-OA-2
Wright, Francis 31-DC-3
Wright, John C. 31-ED-1

Yerushalmy, Jacob 31-AA-3
Yip, Candace 31-KP-2
Young, Harben Boutourline 31-AA-2

Zamoff, Richard B. 31-SA-1
Zimny, George H. 31-JA-2

SUBJECT INDEX

Achievement motivation 31-OF-3
Administrative aspects
  child care systems 31-RF-1
  correctional programs
    juvenile courts 31-KP-1
    probation and parole 31-KP-1
  day care
    facilities 31-RF-2
    staff 31-RF-2
  programs for mentally retarded 31-HJ-1
  residences for mentally retarded 31-HJ-1
  social services 31-RB-1
Adolescents
  attitudes 31-AA-10
  behavior disturbance 31-LF-1
  communication 31-FE-1
  deaf 31-GC-1
  delinquency 31-FA-5, 31-KK-1
    treatment 31-KR-1
  drug abusers 31-FC-1
  feminine development 31-FB-1
  gifted 31-IA-2
  group structures 31-HC-2
  growth and development 31-AA-6
  intellectual development 31-DD-1
  masculinity-femininity 31-IA-2
  mentally retarded 31-HC-1, 31-HC-2
  occupational choice 31-NB-3
  parental
    control 31-MB-4
    influence 31-LA-4
  psychosis 31-FA-5
  self-disclosure 31-FE-1
  social frustration 31-FA-5
  values 31-AA-10
Aggression 31-FB-1
Aging process 31-AA-1
Air pollution 31-SA-2
Alienation 31-OG-4
Allergy 31-CE-3
American Indian children 31-EB-2, 31-FA-6, 31-OG-4, 31-OH-1
Anemia 31-AA-11
Anomalies 31-GD-1, 31-JB-1
Anthropological techniques 31-FA-11
Anxiety 31-EF-1
Aspirations. See also Values.
Attention 31-ED-1
Attitudes of children and youth
  towards
    class scheduling 31-OF-4
    emotional disturbance 31-FA-1
    school 31-OG-4
    television instruction 31-FE-2
    war 31-EC-2
Auditory perception 31-CC-1, 31-CH-2, 31-DC-4, 31-GB-1
Australian children 31-JE-1
Autism 31-JE-1, 31-JE-2, 31-QC-1

Behavior
  academic 31-FA-8
  adaptive 31-HA-2
  antisocial 31-JC-1
  attention 31-BA-3, 31-DC-2, 31-DC-3, 31-ED-1, 31-JH-1
  categorization 31-LA-2, 31-LA-3
  change 31-HF-2
  classroom 31-DG-1, 31-OE-2, 31-OH-1
  communication 31-AA-17, 31-HH-3
  competitive 31-FA-6
  cooperative 31-FA-6
  coping 31-HH-3, 31-LF-1
  deviant 31-FA-2, 31-OB-1
  disruptive 31-LF-1, 31-OB-2
  dysfunction 31-OB-1
  education 31-FA-7
  general activity 31-CG-1
  habituation 31-BA-3
  health and illness 31-SA-5
  imaginative play 31-ED-2
  imitative 31-HC-3
  instruction-following 31-HC-3
  labeling 31-HA-2
  leisure 31-LA-1, 31-PB-5
  maladaptive 31-OG-1
  modification 31-HH-1, 31-JE-2, 31-MC-2, 31-OG-3
  motor 31-DB-3
  obedience 31-DH-5
  object sorting 31-HC-6
  of children with behavioral disabilities 31-FA-7
  of infants 31-AA-17
  patterns 31-BA-4, 31-CC-2, 31-NG-1

persistence 31-BA-4, 31-CH-1
positional 31-FA-3
problems 31-JC-2, 31-LF-3, 31-OB-1, 31-OB-2, 31-OG-2
scales 31-HE-1
setting 31-FA-7
smoking 31-FC-2
social 31-FA-2, 31-FA-5, 31-FA-7, 31-FA-8, 31-HH-3
teacher attention 31-FA-7
therapy 31-JC-1
undercontrolled 31-JC-1
verbal 31-DB-3
visual 31-FA-3
vocal 31-FA-3
Bilingualism 31-DH-1, 31-FE-2, 31-IA-3
Birth
anomalies 31-GD-2
complications 31-JF-2
Black children 31-BA-1, 31-BA-4, 31-DD-2, 31-DD-3, 31-EA-2, 31-EB-1, 31-EB-2, 31-EB-4, 31-EC-2, 31-FA-2, 31-FA-3, 31-FA-8, 31-FA-9, 31-FA-11, 31-HE-2, 31-LF-3, 31-MC-1, 31-NB-3, 31-OH-2, 31-OJ-1, 31-QE-3, 31-SA-2
Blind children 31-CF-1
Body proportions 31-AA-7
Bolivian students 31-NB-1
Brain
abnormalities 31-KD-1
damaged children 31-AA-20, 31-JD-1, 31-KD-1
functioning 31-JF-2

Canadian children 31-FA-6, 31-FE-1, 31-GD-1, 31-JC-2, 31-LG-1, 31-OA-1, 31-PA-2, 31-PB-2, 31-PB-3, 31-PD-1, 31-RE-2
Careers 31-NB-2
Career training 31-QH-1
Categorization 31-LA-3
Cerebral hemodynamics 31-HC-4
Cerebral palsy 31-AA-14
Character development 31-AA-8
Chicano children 31-DD-2, 31-DH-2, 31-EB-1, 31-EB-2, 31-EB-4, 31-FA-2, 31-FE-2, 31-IA-3, 31-LF-3. See also Spanish-speaking children.
Child
care
arrangements 31-RI-1
systems 31-RE-1, 31-RF-1
development 31-BA-2, 31-DC-4, 31-DE-1, 31-DF-2, 31-EB-2, 31-FB-2, 31-FB-3, 31-JC-2, 31-LF-2, 31-LF-3, 31-NG-1
Childhood
cancers 31-SD-2
pathology 31-EA-2
psychoses 31-AA-21
Chilean students 31-NB-1
Chromosomal anomalies 31-GD-1, 31-GD-2
Cigarette smoking 31-FC-2
Cleft palate 31-AA-11
Communication 31-LF-4
assessment 31-DD-3
media 31-EC-2
patterns of adolescents 31-FE-1. See also Hearing; Language; Speech.
Community services 31-DC-4, 31-DE-1, 31-RB-1
Congenital anomalies 31-AA-13
Conservation performance 31-DC-6
Corrections 31-KR-1
program evaluation 31-KP-1
Court volunteers 31-KD-2
Creativity 31-AA-2, 31-DF-1, 31-LA-1, 31-PB-4
Crippled children. See Physically handicapped children.
Crisis intervention 31-FC-1
Cross-cultural study 31-AA-2, 31-DH-3, 31-EB-2, 31-FA-2, 31-FA-6, 31-NB-1, 31-NG-1
Cultural
bias in tests 31-DD-2
factors 31-AA-2, 31-FA-6, 31-NG-1
Culturally deprived children. See Disadvantaged children.
Cystic fibrosis 31-CA-3
Cytogenetic techniques 31-GD-1
Cytological patterns 31-CE-4

Day care 31-BA-1, 31-EA-1, 31-MC-1, 31-RF-1, 31-RF-2, 31-RF-3, 31-SB-2
Deaf children 31-CF-1, 31-GC-1, 31-HH-1, 31-QH-1
Delinquency
causality 31-KD-1
correctional programs 31-KP-1
family therapy 31-KR-1
mentally retarded 31-KC-1
parental perception 31-KP-2
prevention 31-KD-2, 31-KK-1
probation 31-KP-2
program evaluation 31-KR-1
recidivism 31-KK-1
social behavior 31-FA-5
training manual 31-KC-1

Demographic survey 31-BA-1, 31-FA-11, 31-GA-1, 31-KD-1, 31-OJ-1, 31-RB-1
Dental
  health 31-AA-11, 31-CF-1, 31-CF-2, 31-RE-1
    caries 31-CF-3
    malocclusion 31-CF-4
    plaque 31-CF-3
    tongue thrust therapy 31-CF-4
Dentofacial growth 31-AA-6
Diabetes 31-JA-2
Disadvantaged children 31-BA-1, 31-HA-1, 31-MC-1, 31-OH-2, 31-QE-1, 31-QE-3, 31-SB-1
Down's Syndrome 31-CE-2
Drawings 31-DB-3
Drug
  abuse 31-FC-1, 31-LF-3
  education 31-FC-1
  effects 31-DC-3, 31-JH-1
  therapy 31-JH-2
  treatment 31-GE-1

Education
  academic achievement 31-BA-4, 31-DC-4, 31-DD-3, 31-DG-1, 31-EA-2, 31-FA-8, 31-FA-9, 31-GA-1, 31-GC-3, 31-HH-1, 31-MB-1, 31-OA-1, 31-OA-2, 31-OA-3, 31-OA-4, 31-OB-2, 31-OF-1, 31-OF-2, 31-OF-3, 31-OF-4, 31-PB-4, 31-PB-5, 31-QE-2, 31-QH-3
  alienation 31-OG-4
  anthropology 31-OF-1
  aptitude 31-DD-2
  aspirations 31-OH-1
  assessment 31-OA-3
  biology 31-OF-4
  career 31-NB-2
    development 31-QH-1
  class scheduling 31-OF-4
  classification skills 31-DC-5
  classroom
    adjustment 31-HH-4
    behavior 31-JC-1, 31-OE-2, 31-OG-2
    integration 31-QH-2
  compensatory 31-EB-4
  creative training 31-DF-1
  curriculum 31-KC-1, 31-OA-1
  early childhood 31-QH-1
  environment 31-EA-1
  expectations 31-NB-1
  feedback 31-OG-3
  geometry 31-OF-4
  grade placement 31-OB-2
  grading systems 31-OF-2
  health curriculum 31-SA-1
  home
    program 31-MC-2
    training program 31-QC-1
  instructional games 31-OA-2
  intervention 31-OG-3
    programs 31-PA-1
  kindergarten
    program evaluation 31-QE-1
    screening program 31-OE-1
  language 31-DH-4
  maladaptation 31-AA-16
  mathematics 31-DG-1, 31-IA-1, 31-OF-2, 31-PA-1, 31-PA-2
  mental health 31-AA-16
    programs 31-OG-1
  motivation 31-QE-2
  national survey 31-OA-3
  objectives 31-OA-3
  of autistic children 31-QC-1
  of children with communication disorders 31-PB-2
  of children with learning disabilities 31-HE-1, 31-HE-2, 31-HH-2, 31-LF-4, 31-PC-1
  of deaf children 31-QH-2
  of disadvantaged children 31-EB-4, 31-FA-2, 31-QE-3
  of emotionally disturbed children 31-HE-1, 31-JI-1, 31-QC-1
  of gifted 31-IA-1, 31-IA-3
  of handicapped children 31-QH-1
  of hard-of-hearing children 31-QH-3
  of health professionals 31-SA-3
  of hearing impaired children 31-GA-1, 31-GC-3
  of junior high school students 31-OF-2
  of juvenile delinquents 31-KC-1
  of maladaptive children 31-OB-1
  of mentally retarded children 31-HA-2, 31-HE-2, 31-HH-4, 31-MC-2, 31-QC-1
  open classroom 31-OA-4
  paraprofessionals 31-HE-1, 31-QH-2
  parent participation 31-MC-1
  peer relations 31-DH-4
  prekindergarten 31-MC-1
  program
    development 31-QC-1
    evaluation 31-AA-16, 31-OA-1, 31-OA-2, 31-RF-2
  programmed instruction 31-OF-1, 31-QC-1

readiness 31-OE-1, 31-QE-1
reading 31-DG-1, 31-EB-4, 31-HE-2, 31-PB-1, 31-PB-3, 31-PB-4, 31-PB-5, 31-QE-1
school
adaptation 31-EA-1, 31-OG-1
adjustment 31-QH-3
attitude 31-OG-4
interest 31-OA-1
psychologist 31-OB-2
science 31-IA-1, 31-PC-1, 31-SA-3
special education 31-OB-1
teacher
aides 31-AA-16
attitudes towards
special education 31-HA-2
television instruction 31-FE-2
characteristics 31-OF-4
education 31-OB-1, 31-QH-2
expectations 31-OH-1
training 31-SA-1
teacher-child interaction 31-OA-4, 31-OG-3
teaching methods 31-QE-3
test bias 31-DD-2
See also Head Start.
Electroencephalographic characteristics 31-JF-1
Emotionally disturbed children 31-AA-21, 31-HC-2, 31-HE-1, 31-JA-2, 31-JB-1, 31-JE-2, 31-JH-1, 31-JI-1, 31-OB-2, 31-QC-1
Endocrinology 31-AA-11
English children 31-CA-1, 31-CA-2
Environmental factors 31-AA-18, 31-BA-3, 31-CA-1, 31-CA-2, 31-CF-2, 31-CH-1, 31-DH-3, 31-DH-6, 31-EF-1, 31-FC-2, 31-HJ-1, 31-IA-3, 31-JA-1, 31-JD-1, 31-MB-2, 31-OF-2, 31-SA-2, 31-SD-2
Epilepsy 31-GE-1
Ethnic factors. See specific groups.
Exceptional children. See specific types.

Family
attitudes 31-LG-1
background 31-OE-1
childrearing 31-AA-18, 31-JC-2, 31-MB-1, 31-MB-2, 31-MC-1, 31-OH-2
practices 31-MB-3
communication 31-LA-1, 31-LF-4, 31-MB-2
correlates
academic motivation 31-OH-2
of mental retardation 31-HA-1
of respiratory disease 31-CA-2
of sex-role development 31-FB-3
counseling 31-LG-1
enrichment programs 31-MC-3
environment 31-AA-18, 31-EA-1
evaluation 31-MC-3
foster parent 31-RE-2
genetic disease 31-LG-1
intrafamilial coping 31-LF-1
maternal
attitudes 31-RE-1
cognitive styles 31-JC-2
expectations 31-JC-2
influence 31-LA-2
intelligence 31-HA-1
self-concept 31-OH-2
training 31-BA-2
mental disorders 31-JE-1
nutritional status 31-BA-1
parent-child
interaction 31-DB-1, 31-FA-3, 31-GD-2, 31-JC-2, 31-LA-2, 31-LF-1, 31-LF-2, 31-MB-2, 31-MB-3, 31-OJ-1
reactions 31-FB-1
relations 31-AA-5, 31-LF-4
parental
attitudes 31-LG-1, 31-MA-1, 31-OH-1, 31-OJ-1
characteristics 31-RE-2
control 31-MB-4
drug abuse 31-LF-3
education 31-JE-1
expectations 31-OH-1
influence 31-CH-1, 31-EA-1, 31-EC-2, 31-LA-2, 31-LA-4, 31-MB-3
perceptions 31-KP-2, 31-OE-1
power 31-LA-4
schizophrenia 31-JF-1, 31-JF-2, 31-LF-2
reproductive performance 31-LG-1
siblings 31-CF-2, 31-KK-1, 31-LA-2, 31-LA-3, 31-LF-1, 31-MC-1
size 31-LA-2, 31-MB-4
social services 31-RB-1
socioeconomic status 31-JE-1
therapy 31-KK-1, 31-KR-1
Feminine development 31-FB-1
Filipino children 31-CE-1
Foster
care 31-RE-1
placement outcome 31-RE-2
French students 31-DH-3

Galactosemia 31-HF-1
Games 31-ED-2

Genetics
disease 31-LG-1
general 31-AA-2, 31-AA-3
influence on growth 31-CF-2
Gifted children 31-IA-1, 31-IA-2, 31-IA-3
Goals. See Values.
Group
interaction 31-OA-2
relations 31-EC-1
Guatemalan children 31-AA-12

Head Start
curricula 31-OE-2, 31-QE-2, 31-SA-1
programs 31-QE-2, 31-SB-1
Health
allergy 31-CE-3
blood
lead 31-SA-2
metabolism 31-SA-2
cancer 31-SD-2
child health practitioners 31-SA-3
dental 31-CF-3
diabetes 31-JA-2
education 31-SA-1
heart disease 31-JA-2
iron deficiency 31-SD-1
leukemia 31-SD-2
nutrition 31-CE-1
paraprofessionals 31-SB-1
parent participation 31-SB-1
prenatal irradiation 31-SD-2
problems 31-SB-1
programs
genetic diseases 31-LG-1
radiation 31-SA-4
respiratory disease 31-CA-1, 31-CA-2, 31-FC-2, 31-SB-2
services 31-BA-1, 31-SB-1, 31-SB-2
for foster children 31-RE-1
of children and youth 31-SA-5
status 31-AA-1, 31-AA-2
virus 31-SB-2
well baby clinic 31-FA-3
Hearing
impaired children 31-GA-1, 31-GB-1, 31-GC-2, 31-GC-3, 31-PB-2, 31-QH-3
right ear advantage 31-CC-1
Heart disease 31-JA-2
Heredity. See Genetics.
High school students 31-LA-1, 31-LA-4, 31-MB-4, 31-NB-2, 31-NB-3, 31-OF-4, 31-OH-1
Home visitation 31-BA-1
Hospitalized children
treatment 31-JI-1
Hyperkinesis 31-DC-3, 31-JC-2, 31-JH-1, 31-JH-2, 31-LF-4

Immunity 31-SB-2
Impulsivity 31-CH-1, 31-ED-1, 31-JC-2
Incentive value 31-AA-19
Independence 31-EB-1
Individual differences 31-AA-15, 31-BA-3, 31-CF-2
Infants
anxiety 31-EF-1
attention 31-BA-3, 31-DC-2
autism 31-JE-1
body image 31-FB-2
cortisol excretion 31-EF-1
cultural factors 31-NG-1
development 31-JE-1
environmental factors 31-AA-15
general activity 31-CG-1
growth and development 31-AA-9
high-risk 31-BA-2, 31-JF-2
identical twins 31-AA-15
individual differences 31-AA-5
information processing 31-DC-2
iron deficiency 31-SD-1
language acquisition 31-AA-17
memory 31-DC-2
mortality 31-SD-2
neurological disorders 31-AA-14
nutrition 31-CE-1
of schizophrenic parents 31-LF-2
physiological characteristics 31-LF-2
response to sound 31-CC-2
sex chromosomal anomalies 31-GD-2
sexual identity 31-FB-2
speech discrimination 31-CH-2
stimulation 31-QE-3
symbolization 31-FB-2
vestibular stimulation 31-CG-1
Institutionalized children 31-AA-21, 31-CA-4, 31-CF-1, 31-HC-4, 31-HC-5, 31-HC-6, 31-HF 31-HH-4, 31-JA-2, 31-JE-2, 31-JI-1, 31-KD-1, 31-KR-1
Instructional material 31-OF-1
Intelligence
cognitive
behavior 31-JH-1

development 31-AA-4, 31-AA-12, 31-AA-18, 31-BA-4, 31-DB-1, 31-DB-3, 31-DC-6, 31-DD-1, 31-DH-3, 31-DH-4, 31-HF-1, 31-QE-2, 31-RF-3
performance 31-DB-2
processes 31-LA-1
style 31-ED-1, 31-IA-3, 31-JC-2, 31-MB-2
concept 31-PA-1
development 31-DH-8
formation 31-HC-6
identification 31-DB-2
learning 31-PA-2
monetary 31-DE-1
conservation 31-DC-6
creative thinking 31-DF-1
development 31-DB-1, 31-DC-5, 31-DC-6, 31-DD-1, 31-DH-1, 31-HA-1, 31-HF-2, 31-MB-3
educability 31-AA-18
measurement 31-AA-18, 31-HA-1, 31-MB-3, 31-OB-2
perceptual processes 31-EG-1
perceptual-motor processes 31-DG-1, 31-GC-2, 31-HC-1, 31-HC-6
problem solving 31-DC-4, 31-DF-1, 31-JC-2, 31-MC-3, 31-PA-1
reasoning 31-DA-1, 31-DF-2
sex factors 31-IA-2
testing 31-DD-1
Intergenerational relations 31-FA-11
Intervention program effectiveness 31-FA-7, 31-HE-1, 31-JA-1, 31-MC-3, 31-OJ-1, 31-PA-1, 31-SB-1
Iron deficiency 31-SD-1
Italian children 31-AA-2

Japanese children 31-NG-1
Junior high school students 31-NB-2, 31-OG-4, 31-PC-1

Language
abilities 31-GB-1
acquisition 31-AA-17, 31-DH-1, 31-DH-4
bilingualism 31-DH-2, 31-IA-3
comprehension 31-DH-1, 31-DH-6
development 31-AA-17, 31-AA-18, 31-DC-4, 31-DH-4, 31-DH-5, 31-DH-6
disorder 31-DH-7, 31-PB-2
grammar 31-DH-7
learning 31-DC-1, 31-DH-2
mnemonics 31-DC-1
nonvocal skills 31-HH-4
noun pluralization 31-DH-2
paraphrase 31-DH-4
perception 31-DH-3
production 31-DH-6
second (French) 31-DH-1
semantic
content 31-DH-5
interpretation 31-DH-7
skills 31-HH-1, 31-QC-1
structure 31-DH-3
syntactic structure 31-DH-5
thought relations 31-DH-8
training 31-HH-4
usage 31-DH-8
vocabulary 31-HH-4
Leadership 31-EB-1
Learning
abilities 31-OF-1
acquisition 31-DC-2, 31-DC-5
classification 31-DC-5
cognitive 31-OF-4
concept 31-PA-2
disabilities 31-HE-1, 31-HF-1, 31-JC-2, 31-JD-1, 31-LF-4, 31-PB-1, 31-PC-1, 31-PC-2
diagnosis 31-HH-2
drug treatment 31-DC-3
teaching methods 31-HE-2
games 31-OA-2
incentive value 31-AA-19
interdependent 31-OA-2
memory 31-DC-1, 31-DG-6, 31-JH-1
needs 31-DC-4
paired-associate learning 31-DH-9
patterns 31-BA-4
perceptual-motor processes 31-DC-2
problems 31-DC-4
recall 31-DC-1
short-term memory 31-GC-1, 31-JH-1
strategies 31-GC-1
Leisure activities 31-LA-1

Masculinity-femininity 31-IA-2
Maternal and child health services 31-AA-20, 31-BA-2, 31-SD-1
Mathematics 31-PA-2
Maturation patterns 31-CE-4
Mauritian children 31-JF-1
Mental health
disorder 31-JA-1
programs 31-AA-16
school programs 31-OG-1

Mental illness. See Emotionally disturbed children; specific disorders.
Mentally retarded children 31-DA-1, 31-DC-6, 31-DH-5, 31-ED-1, 31-HA-1, 31-HA-2, 31-HC-1, 31-HC-2, 31-HC-3, 31-HC-4, 31-HC-5, 31-HC-6, 31-HF-2, 31-HH-1, 31-HH-3, 31-HH-4, 31-HJ-1, 31-JA-2, 31-KC-1, 31-MC-2, 31-QC-1, 31-QH-1
Metabolic disorders 31-HF-1
Methylphenidate 31-JH-2
Mexican-American children. See Chicano children; Spanish-speaking children.
Moral
  conduct 31-DA-1
  judgment 31-DA-1
  values 31-AA-2
Mortality 31-AA-3, 31-SD-2
Motion picture films 31-EB-1, 31-EB-2
Motor
  abilities 31-AA-4
  performance 31-CG-1
  skill stimulation 31-QE-3

Negro children. See Black children.
Neonates 31-AA-20, 31-BA-3, 31-CA-2, 31-CC-2, 31-GD-1, 31-SD-1
Neurological deficiency 31-HC-5
Neurophysiological measures 31-JF-1
Newborn infants. See Neonates.
Nutrition 31-CE-4
  nitrogen balance 31-CE-1
  of children with Down's syndrome 31-CE-2
  phenylketonuria 31-HF-2
  soy bean allergy 31-CE-3

Observational techniques 31-AA-17, 31-AA-18, 31-AA-21, 31-CC-2, 31-CH-1, 31-DH-6, 31-ED-2 31-FA-4, 31-FB-2, 31-GB-1, 31-HH-3, 31-HJ-1, 31-JC-1, 31-JC-2, 31-MB-2, 31-NG-1, 31-OA-4, 31-OE-2, 31-OG-2, 31-OG-3, 31-SB-2
Occupational
  choice 31-NB-3
  expectations and adjustment 31-NB-1
  status 31-OH-2
Open classroom 31-OA-4
Pancreatic supplement 31-CA-3
Paraprofessionals 31-BA-1, 31-HE-1, 31-OG-1, 31-QH-2, 31-SB-1
Parent education and participation 31-BA-1, 31-FE-2, 31-HH-1, 31-MA-1, 31-MB-1, 31-MB-3, 31-MC-1, 31-MC-2, 31-OJ-1, 31-QC-1, 31-RI-1, 31-SA-1
Pediatricians 31-SA-3
Peer
  interaction 31-FA-3
  perception 31-FA-1
Pelvimetry 31-SA-4
Perinatal factors 31-AA-3, 31-AA-14, 31-AA-15, 31-AA-20, 31-BA-1, 31-JE-1, 31-LF-2, 31-LF-3, 31-SA-4, 31-SD-1
Personal success 31-EA-2
Personality
  adjustment 31-AA-1
  assessment 31-EB-3
  characteristics 31-EG-1
  development 31-EA-1, 31-HF-1
  imagination 31-ED-2
  independence 31-FA-9
  locus of control 31-DB-1
  measurement 31-EB-3, 31-MA-1, 31-PB-4
  self-concept 31-EB-1, 31-EB-2, 31-EB-4, 31-FA-9, 31-OF-3, 31-OH-2
  self-understanding 31-EB-3
  sentiment 31-EC-1
  structure 31-EA-2
Phenylketonuria 31-HF-2
Physical growth and development 31-AA-11, 31-AA-12, 31-AA-15, 31-BA-3, 31-BA-4, 31-CF-2, 31-LF-2
Physically handicapped children 31-GA-1, 31-GB-1, 31-GC-1, 31-GC-2, 31-GC-3, 31-GD-2, 31-GE-1, 31-HH-4, 31-QH-1, 31-QH-2, 31-QH-3
Physiological measures 31-LF-4
Piagetian operational stages 31-DH-1
Play 31-CH-1, 31-ED-2, 31-FA-7, 31-FB-2, 31-OE-2
Political attitudes 31-EC-2
Pregnancy. See Perinatal factors; Prenatal factors.
Premature births 31-BA-2
Prenatal factors 31-AA-14, 31-AA-15, 31-AA-20, 31-BA-1, 31-GD-1, 31-LF-2, 31-SA-4, 31-SD-1
Productive Thinking Program 31-DF-1
Program
  effectiveness 31-NB-2
  evaluation 31-EB-4, 31-KD-2, 31-KK-1, 31-SA-1
Programmed instruction. See Education.
Psychiatric
  consultation for teachers 31-OB-1
  symptomatology 31-JB-1
Psychopathology 31-KR-1

Psychoses 31-AA-21, 31-FA-5, 31-JA-1, 31-JB-1, 31-JE-1
Psychosocial
  maturity 31-FA-9
  measures 31-JF-2
Psychotherapy 31-AA-21
Puerto Rican children 31-OJ-1
Purdue Creativity Training Program 31-DF-1

Radiation exposure 31-SA-4
Reading
  achievement 31-EB-4, 31-PB-4, 31-PB-5
  acquisition 31-PB-2
  comprehension 31-HE-2
  development 31-PB-3
  disability 31-HE-2, 31-JH-2, 31-PB-1, 31-PC-1
  habits 31-PB-5
  potential 31-PB-4
  readiness 31-DG-1, 31-PB-2, 31-PB-3, 31-QE-1
  skills 31-DG-1
  subskills 31-PB-2
  Sullivan Reading Program 31-QE-1
Recall 31-DH-9
Recidivism 31-KK-1
Reinforcement
  familiarity with reinforcer 31-FA-10
  feedback 31-OF-2
  social 31-FA-8, 31-FA-10
  techniques 31-AA-19
Reflection 31-ED-1
Reflective children 31-JC-2
Response training 31-HC-3
Rocking 31-CG-1
Role
  concepts 31-FB-1, 31-FB-3
  playing 31-LF-1
  relationships 31-RF-3
Rural children 31-OH-1, 31-SB-1

Schizophrenia 31-JE-2, 31-JF-1, 31-JF-2, 31-LF-2
Self-concepts. See Personality.
Sensory-motor tasks 31-BA-2
Sensory stimulation 31-AA-5, 31-CH-2, 31-GC-2, 31-QE-3
Sentiment 31-EC-1
Sex role development 31-FB-3
Siblings. See Family.
Skills
  perceptual 31-DG-1
  self-help 31-DD-3, 31-HH-1, 31-HH-3, 31-JD-1, 31-JE-2, 31-MC-2, 31-QC-1
Social
  adaptation 31-FA-10
  antisocial behavior 31-JC-1
  behavior 31-FA-3
  deprivation 31-DH-6
  development 31-EA-1, 31-FA-4, 31-FA-10, 31-GC-3
  engagement 31-FA-4
  frustrations 31-FA-5
  functioning 31-EA-1
  groups 31-HC-2
  interaction 31-OA-4
  maturity 31-FA-9
  peer perception 31-FA-1
  play 31-FA-7
  relations 31-FA-11
  roles 31-FA-2, 31-FB-3, 31-RF-3
  services 31-DC-4, 31-DE-1, 31-KD-2, 31-KP-2, 31-RB-1, 31-RE-2, 31-RI-1
  tolerance 31-FA-9
  Work Incentive Program 31-RI-1
  workers 31-KD-2, 31-KP-2, 31-LF-3, 31-RI-1
Socioeconomic
  factors 31-AA-11, 31-AA-12, 31-DB-2, 31-DE-1, 31-EC-1, 31-EC-2, 31-FA-2, 31-HA-2, 31-HH-1, 31-LA-1, 31-LF-2, 31-NB-3, 31-OH-2, 31-PB-5. See also Disadvantaged children.
Space patterning 31-EG-1
Spanish-speaking children 31-DH-2, 31-DH-5, 31-FE-2, 31-RB-1. See also Chicano children.
Special education. See Education.
Speech
  chained sequences 31-FA-4
  communication 31-LA-1
  complexity 31-CH-2
  development 31-CH-1, 31-FB-2
  dichotic 31-CC-1
  discrimination 31-CH-2
  disorders 31-DH-7, 31-PB-2
  of mentally retarded children 31-HC-1
  problems 31-OE-1
  rate 31-HC-1
  skills 31-HH-1
  social 31-CH-1, 31-FA-4
Status projections 31-OH-2

Stimulus patterns 31-DF-2
Swiss children 31-DH-1

Teacher training materials 31-EB-1
Television instruction 31-FE-2
Tests
Adaptive Behavior Inventory for Children 31-FA-2
Adaptive Behavior Scale 31-HF-2
Adaptive Check List 31-IA-2
auditory acuity 31-DC-3
Ayres Figure-Ground Subtest 31-DC-3
Basic Sight Word Test 31-PD-1
Bayley Test of Development 31-LF-2
Bender Gestalt Test 31-HF-1, 31-JH-2
Benton Visual Retention Test 31-HC-4, 31-PB-1
Berry Buktenica Visual Motor Form Integration 31-DC-3
Boehm Test of Basic Concepts 31-QE-1
Bond-Baylow-Hoyt Diagnostic Test 31-DC-3
Botel's Word Opposites Test 31-PD-1
California Test of Personality 31-JA-2
Canadian Cognitive Abilities Test 31-OB-1
Cattell Infant Intelligence Scale 31-BA-1, 31-OJ-1
Child Rearing Practices Questionnaire 31-MB-1
Children's Perceptions of Parental Behavior Inventory 31-EG-1
Children's Personality Questionnaire 31-EG-1
closure 31-HC-4
Cognitive Abilities Test 31-MC-1
Coopersmith Self-Esteem Inventory 31-EB-4
cultural bias 31-DD-2
Davis Reading Test 31-NB-3
Developmental Screening Instrument 31-OJ-1
Devereux Scales 31-JI-1
DeVries' Standardized Piagetian Tasks 31-MB-3
digit span 31-DC-3
Draw-A-Man Test 31-DC-3
Draw-A-Person Test 31-HF-1, 31-JH-2
Embedded Figures Test 31-EG-1
Family Attitude Measure 31-MA-1
figure-ground 31-HC-4
Frostig Figure-Ground Subtest 31-DC-3
General Aptitude Test Battery 31-NB-3
Gesell Developmental Scales 31-HF-1
Gesell Developmental Schedules 31-BA-2
Gray Oral Reading Test 31-JH-2, 31-PB-1
High School Personality Questionnaire 31-MA-1
House-Tree-Person 31-HC-4
Human Figure Drawing Test 31-JA-2
Illinois Test of Psycholinguistic Abilities 31-DC-3, 31-PB-1
Iowa Test of Basic Skills 31-QH-3
Jastak Wide Range Achievement Test 31-DC-3
Kansas Reflection-Impulsivity Scale for Preschoolers 31-ED-1
Knox Cube Test 31-PB-1
lipreading 31-QH-3
listening ability 31-QH-3
Metropolitan Reading Achievement Test 31-PB-1
Metropolitan Reading Readiness Test 31-QE-1
Minnesota Multiphasic Personality Inventory 31-IA-2
neonatal 31-AA-13
Occupational Aspirations Scale 31-NB-3
Otis Quick-Scoring Mental Abilities Test 31-PD-1
Ottawa School Behavior Checklist 31-OB-1
Peabody Picture Vocabulary Test 31-DB-1, 31-HA-1
Porteus Maze Test 31-JH-2
Primary Mental Abilities Test 31-MC-1
problem solving 31-DF-1
reading 31-HE-2
Reitan Battery 31-GE-1
Rorschach 31-HF-1
Self-Disclosure Inventory for Adolescents 31-FE-1
semantic differential 31-FC-1
Sentence Completion Test 31-HF-1
Sequin Form Board 31-OJ-1
Social Competence Scale 31-EA-1
Socioculture Modality Index 31-FA-2
speed concept 31-DH-8
Stanford Achievement Test 31-GA-1
Stanford-Binet Intelligence Scale 31-HE-2, 31-MB-3, 31-MC-1
Stanford Diagnostic Reading Test 31-EB-4
Stephens-Delys Reinforcement Contingency Interview 31-DB-1
Strong Vocational Inventory Blank 31-IA-2
Symptom Checklist 31-EA-1
Terman Concept Mastery Test 31-IA-2
Thematic Apperception Test 31-HK-1
time discrimination 31-GC-2

Torrance Tests of Creative Thinking 31-DF-1
Veroff's assessment of achievement motivation 31-MB-3
Wechsler Adult Intelligence Scale 31-DD-1, 31-HF-1, 31-MC-1
Wechsler Intelligence Scale for Children 31-DD-1, 31-FA-2, 31-JH-2
Welsh Figure Preference Test 31-IA-2
Wide Range Achievement Test 31-HE-2, 31-JH-2, 31-PB-1
Thioridazine 31-JH-2
Token economy 31-QE-2
Training manual for delinquents 31-KC-1
Tryptophan 31-CE-2
Twin studies 31-AA-6, 31-AA-15, 31-CF-2

Underachievement 31-DC-4

Values 31-AA-2, 31-AA-8, 31-AA-10
Verbal
elaboration 31-DH-9
learning 31-DC-1
Videotape 31-AA-17
Vietnam War 31-EC-2
Visual
acuity 31-DC-3
articulation 31-DB-3
attention 31-DC-2
memory 31-JH-2
perception 31-DH-2, 31-DC-4
difficulties 31-HF-1
memory 31-PB-1
reading disability 31-PB-1
Vocabulary 31-HE-2, 31-PD-1

Welfare
Aid to Families with Dependent Children 31-RI-1

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Abstracts of Hospital Management Studies (quarterly), the Cooperative Information Center of Hospital Management Studies, University of Michigan, 220 East Huron Street, 419 City Center Building, Ann Arbor, Michigan 48108.

Abstracts on Criminology and Penology, Criminologica Foundation, Rapenburg 38, Leiden, The Netherlands.

Communication Disorders, Information Center for Hearing, Speech, and Disorders of Human Communication, The Johns Hopkins Medical Institutes, 310 Harriet Lane Home, Baltimore, Maryland 21205.

Current Index to Journals in Education (monthly), CCM Information Corporation, 909 Third Avenue, New York, New York 10020.

Dissertation Abstracts, University Microfilms, Ann Arbor, Michigan 48103. (Gives synopses of U.S. doctoral dissertations with an annual index.)

dsh Abstracts, Deafness, Speech and Hearing Publications, Gallaudet College, Washington, D.C. 20002.

Exceptional Child Education Abstracts (quarterly), The Council for Exceptional Children, Box 6034, Mid City Station, Washington, D.C. 20005.

Health Economic Studies Information Exchange, Division of Medical Care Administration, Public Health Service, Washington, D.C. 20402.

Index Medicus, National Institutes of Health. Order from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Language and Language Behavior Abstracts (quarterly), Center for Research on Language and Language Behavior, University of Michigan, Ann Arbor, Michigan 48104. Order from Subscription Manager, LLBA, Meredith Publishing Co., 440 Park Avenue South, New York, New York 10016.

Mental Retardation Abstracts, Division of Mental Retardation, Social and Rehabilitation Service, 330 Independence Avenue, S.W., Washington, D.C. 20201. Concerning abstracts write to Lemar J. Clevenger, Project Administrator, MRA, American Association of Mental Deficiency, 1601 West Broad Street, Columbus, Ohio 43223 or Miss Patricia Thuben, Project Officer, Division of Mental Retardation, Rehabilitation Services Administration, Social and Rehabilitation Service, Washington, D.C. 20201.

Nutrition Abstracts and Reviews, Commonwealth Bureau of Animal Nutrition, Bucksburn, Aberdeen AB2 9SB, Scotland.

Poverty and Human Resources Abstracts (bimonthly), Institute of Labor and Industrial Relations, University of Michigan-Wayne State University, P.O. Box 1567, Ann Arbor, Michigan 48106.

Psychological Abstracts, American Psychological Association, 1333-16th Street, N.W., Washington, D.C. 20036.

Rehabilitation Literature, National Easter Seal Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois 60612.

Research in Education (monthly), Leasco Systems and Research Corporation, 4833 Rugby Avenue, Bethesda, Maryland 20014.
Sociological Abstracts, 15 East 31st Street, New York, New York 10016.

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The Excerpta Medica Foundation, New York Academy of Medicine Building, 2 East 103rd Street, New York, New York 10029, and 119-123 Herengracht, Amsterdam C, The Netherlands has established an abstracting service on pediatrics, available on a yearly subscription basis. In addition to abstracts, the Foundation provides to subscribers, at cost, photocopies and translations of complete articles.

The Minnesota Family Study Center supplies to interested scholars bibliographic information from the Inventory of Published Research in Marriage and Family Behavior. Address requests to: Director, Inventory of Published Research in Marriage and Family Behavior, Social Science Tower 1026, University of Minnesota, Minneapolis, Minnesota 55455.

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The Library of the National Bureau for Child Welfare (Voor Kinderbescherming), Stadhouderslaan 150, The Hague, The Netherlands publishes abstracts of articles in the field of child welfare each month. These are in Dutch, but those familiar with the Universal Decimal System would be able to understand something about the articles. The subscription rate for documentation on cards is 30 guilders (approximately $8.40).

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Bibliography on the Battered Child, revised July 1969. Copies free from the Children's Bureau, Office of Child Development, U.S. Department of Health, Education and Welfare, P.O. Box 1182, Washington, D.C. 20013.

Research Relating to Emotionally Disturbed Children, 1968. A listing of studies reported to the Clearinghouse between 1956 and 1967, including publication references. Single copies free from the Children's Bureau; also available *directly* from the Government Printing Office, Washington, D.C. 20402, for $1.00. Do *not* send money to the Children's Bureau.

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